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# Current Notes

**Vol. 9 No. 1**

**Jan/Feb 1989**

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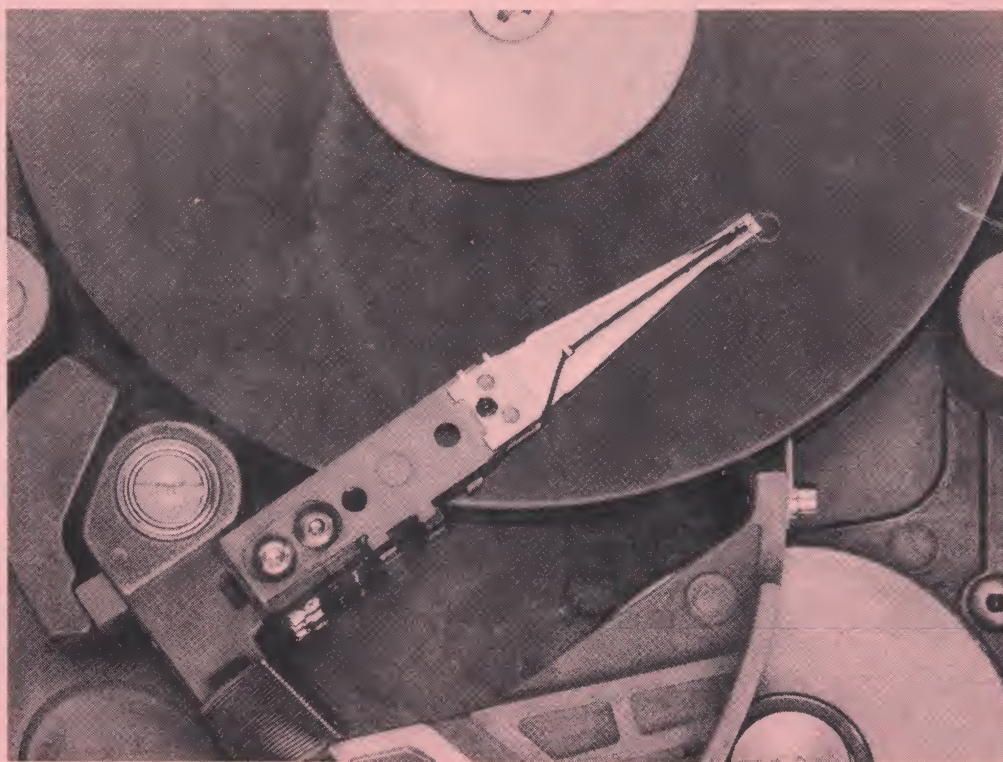
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equal the price?



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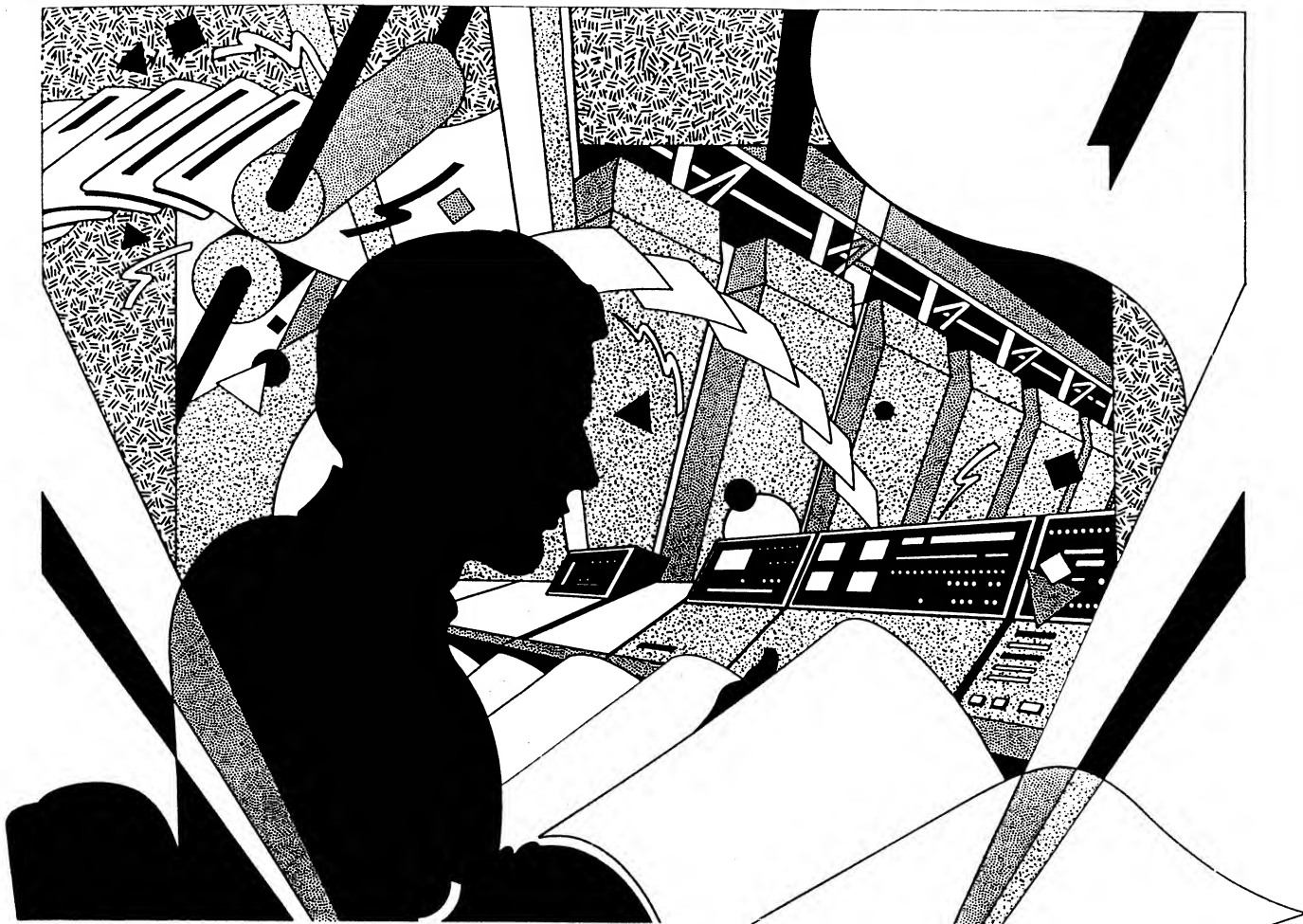
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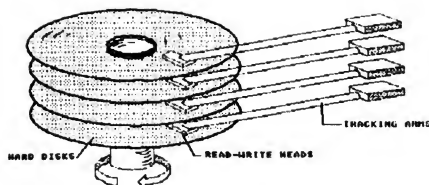
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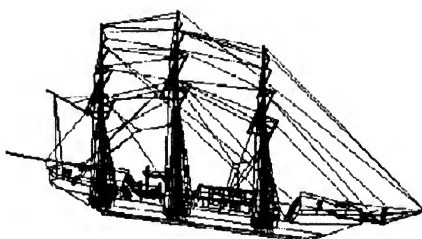
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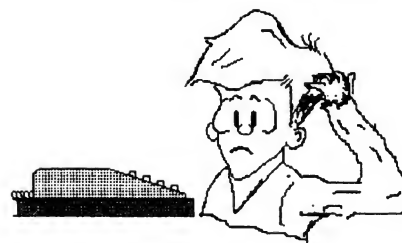




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## From the Editor's Desk:



Well, here we are with the first issue of 1989. Volume 9 means this is the start of the 9th year of CURRENT NOTES! That's a long time for anyone to be in the Atari community. Longer, in fact, than the Tramiels have been involved with Atari. Over that period, CN has seen some major changes.

My own editorship began with Volume 4 in May of 1984. At that time, CN, all 24 pages of it, was a newsletter going to some 400 members in three Washington area Atari clubs: Novatari, the Washington DC Group, and AURA. With this issue, approximately 5,000 copies are being sent to the members of eight Washington area Atari clubs, members of 46 CN Registered Clubs elsewhere in the country, and direct subscribers in virtually every state and many foreign countries. In addition, CN is now available in well over a hundred Atari stores scattered throughout the nation.

Besides increasing size and circulation, other gradual changes have also occurred. In particular, long-time readers will have noticed a progression of various CN "columnists." Back in 1984 when I took over as editor from Staffan Sandberg, CN had only two regular columnists. I was one, writing a column called "Basic Beat," a tutorial on Atari Basic. The other was a column called "Atari Scuttlebits" that Bob Kelly had launched in January of that year. My column didn't last very long as I discovered that writing a column in addition to editing the newsletter was a bit more work than I could handle. But Bob Kelly, who received the CN Columnist of the Year Award in 1987, has continued writing his popular "Atari Scuttlebits" column for the past five years.

At the start of last year, Bob was inclined to retire. However, several of us in the CN family urged him to stay on a bit longer and Bob completed yet another year. This year he really did want to hang up his pen and work on some other things so, I am sorry to report, "Atari Scuttlebits" is no more. I'm sure all of you, as I, will miss Bob's monthly Scuttlebits, but we do wish him well and hope to see Bob again doing occasional reviews.

Jim Stevenson Jr. was another CN regular whose "Tips'N'Traps" column was eagerly awaited by adventure fans for many years. In 1988, however, Jim finished high school and went off to college and "Tips'N'Traps" was no more. We then started a new column by Robert Millard, called "There and Back

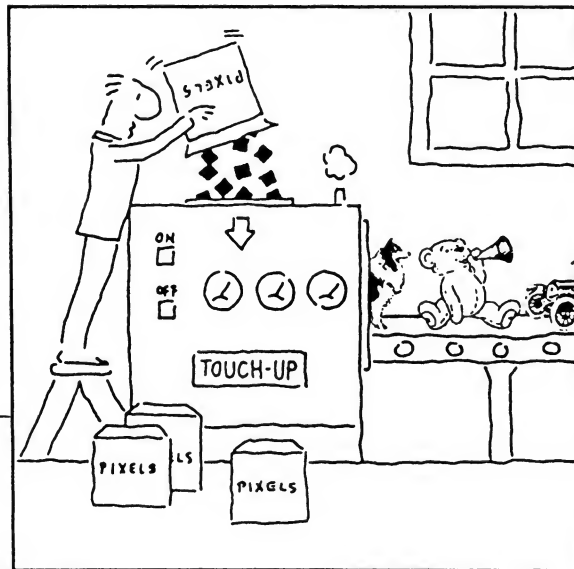
Again," designed for those readers who enjoyed fantasy role-playing games. But a fantasy game is not quite an adventure game. So, we continued to look for another adventurer to continue "Tips'N'Traps." I am pleased to say that we have been successful. This month, Sam Wright starts a new column, called "Stuck In A Rut," that will cater to adventure game fans. Neither the title nor the format will be identical to the earlier "Tips'N'Traps." Each author, after all, brings his own personality to his column, but I think we will all look forward to the adventure "Tips" Sam has to offer in coming issues.

Another popular CN column started back in 1987, "Adventures in the Magic Sackdom," later renamed "The Mac/ST Connection," has been authored by Jeff Greenblatt. Jeff has done a superb job of introducing CN readers to the wonders of Mac emulation on the ST and has built an excellent library of Mac public domain software for the ST. Of course, writing a column, building the library, and doing product reviews has kept Jeff very busy, in fact, too busy. So, this month, Jeff offers his final regular column. Next month, "The Mac/ST Connection" will be authored by Doug Hodson who has been doing a similar column for the Miami Valley Atari Computer Enthusiasts for quite some time. Jeff will continue his work on building the Magic Sac and Spectre libraries and will continue with occasional product reviews.

Although 1989 will definitely see further changes in CN, much will remain the same. Frank Sommers and Len Poggiali will continue their regular updates as ST and XL/XE editors respectively. Dave Small continues his wonderful "It's A Small World" column. Richard Gunter will continue his new "Starting Block" tutorial column and Joe Lambert his "Escape Artist" column. The 8-bit fans can look forward to regular "Small Miracles" as well as "The Game Cart." I will continue on as publisher trying to maintain the standards we have set and, maybe, push them forward a bit every month. I hope you all enjoy this new January/February issue for 1989 and nine more as we go forward continuing to Monitor the World of Atari.

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# A Year Full of Hope?

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**Prophets Beware.** January is the month columnists review the past (honest ones citing the error of their prognostications), and prophesy the future for the coming year. Thank heavens January is past.

For in February the future is always much clearer, particularly Atari's future. Since this is the year of "Hope for Planet Earth", with expectations high that we will quiet some of the 30-odd regional wars going on, and superpowerdom will evolve into more participation and cooperation among the nations, why not high expectations for Atari also?

Gentleman Jack, who might have appeared in the last couple of years to have lost his Pfinger Schpitzen Gehfuehl (as they say in Berlin when commenting on someone's sense of touch or feel for the computer market or anything else), has declared that this will be the year of Atari USA.

There are serious indications that he has foresworn international dabbling and the economic politics of testifying before Congress re trade policies involving electronics and chips and things (where, incidentally, he made considerable sense in our humble opinion), and is now in his office at Atari, interviewing people with a vengeance. Interviewing the old guard and the new. Interviewing them about old products, announced but not out yet, and new products that should be rushed into production, e.g. a joystick with the game machine built into the handle, and all you do is connect it to your TV. (One presumes a slot for cartridges also.)

What has gotten his wind up is not certain. But as early as Comdex

last fall he was talking about this being the year to deliver product to the American market. Concerns of past and present employees as well as loyal Atari users may have gotten thru to him, and he now senses something must be done. Internally, at Atari, skepticism has focused on early fall as the time when Atari has to have proven to itself that it can seriously increase its penetration of the U.S. market, either that or consider terms of surrender. That makes for a small window of opportunity, but it's there and other signs in the heaven point toward Atari blasting right on thru it. What are they?

**Wanna Bet—a Million?** Atari has arranged to import twice as many computer machines into the good ole U.S. of A. as last year. How many is that? Ever since Sig Hartmann was asked in Washington, D.C. one evening at dinner back in 1986, if Atari had 200,000 ST's out worldwide yet, and he smiled and replied, "Almost, but that may be a little high," the numbers game with Atari has been a difficult one. Sources on the coast estimate that Atari may have imported into the U.S. between 60,000 and 80,000 computers last year. So double up conservatively and say they hope to sell 120,000 this year. If you accept the numbers that maintain there are some 600,000 of their computers in Europe and about 300,000 now in America, then this could be the year that Atari takes the ST's and the Mega ST's over the top—One Million Machines Out There.

So Jack has ordered that by the end of the year product a plenty will verily bulge the walls of the

dealer stores. Along with product, Atari has announced "Atari, Phase Two." This is the phase when new products will emerge to fill the new Atari computer niche, the home office. Intrigues you?

**UltraScript & DeskSet.** Well, if we could believe the brochures lying around the Federated Stores, then we would already be seeing and buying *UltraScript*, the PostScript clone for the Atari laser, in a cartridge for \$200, as well as *DeskSet 2*, "a low cost professional level laser type setting software system ... with Compugraphics scaled outline fonts in sizes from 5 to 119 points with screen representation being exactly what you will see in laser print out." All this from GO Graphics, and about which we first heard at the Comdex before last. It was all supposed to be out for Christmas.

Our word on *UltraScript*, from several sources, is that three weeks before Xmas it had but three commands to be cleaned up and then it would be ready to go. Go where? Well, first to the printer for documentation which can take some time, and then of course, while that is going on, Atari and Imagen have to sign the final contracts, if they haven't already. Atari had developed a reputation for verbal agreements and launching the product or project and then after parties are committed or their appetites are already assuming ravenous proportions, a little bottom line finagling begins. Several deals have terminated abruptly because of this, we hear. So with fingers crossed we would hope to see *UltraScript* by the beginning of the second quarter. *DeskSet 2?* Maybe never.

### What Did Christmas Bring?

Despite what you will read below about Nintendo locking up the game machine market over the holidays, Atari had "a record quarter," i.e. its best quarter ever. Considering that it does 30-50% of its business during the Xmas season this is pleasing as well as surprising. The best selling 1040 ST's were not in abundant supply due to the chip shortage. The game machines which had caught on again were under heavy fire from competition, and more and more dealers were offering other lines besides Atari, just to stay alive. Michtron, the biggest Atari software developer in the U.S. was reporting sales of Atari software down 30-40% with Commodore sales climbing. So what was selling? Just about everything Atari was offering. The Mega ST2 publishing package was a boomer, ranging anywhere from \$1,395 to \$1,695. The laser printer, as well it should have been, was sold out in most locations at prices of \$1,395 up to \$1995. It really is a winner when coupled with a Mega. A number of people who took the downscale Hewlette Packard, DeskJet \$800 route have, because of the startling difference in time to print graphics, switched. Now only the purist or purists are holding out for a laser printer that will produce PostScript. The rest of us smile and watch the paper sluice out of the printer port, a minute a page for graphics being the average. In addition, dealers are collectively positive about the support and help they're getting from Mike Dindo, the marketing man. They are also beginning to receive advertising monies or credits and the ad campaign has started on the West Coast with spots appearing regularly.

So is a company going bye-bye that has the prospect of an even better Xmas in 1989? We hope not and think not. But there is no question but that the pressure is on.

**New From Atari.** The latest and best is a \$19 **swivel-and-slide base** for the monitor. It really works and smoothly, too. You laugh? Is that their biggest hardware contribution of the year? Yup, so far. But they are switching their 20 meg hard drives, the Mega File 20, sold with their Mega 2's to the Mega File 30. And the 30 meg drive alone sells for a pleasing price of only \$699. That's another 10 meg for about \$10 a meg additional cost.

The new **Tramiel Operating System (TOS)**? Apparently, although Beta testers are uniformly singing its praises, it isn't in ROM yet. A few bugs are still being worked out. Our guess is the end of the 2nd quarter. Price quotes for a set of chips installed vary from \$60 to \$90. Wait and see. But it is fast, has a new item selector window with fancy add-on's, if not quite as good as *Universal Item Selector*, and gives you the capacity to go 40-folders deep into one folder versus the old TOS bombing after you had opened or closed 40 folders anywhere.

**The TT?** The new Thirty Two bit machine to compete with the other 32-bit computers out there, where is it? Still big only in magazines. As we have said, it has been born. It has been seen at Atari. It has hair and teeth and will be a 68030 machine for about \$3000, with amongst other things Spectre 128 built in, if David Small is properly encouraged by Atari. It will be out this year or never, we would guess. It will not use the new TOS but a different operating system.

**New From Elsewhere.** If last year was the year of the hard drive, we suspicion that this will be the year of the FAX machine. Even this Christmas, families, who could afford it, were tying together their far flung progeny by giving everybody a fax machine, so pictures and bits and pieces about their lives could be exchanged immediately. Well, Bill Yerger of MicroWorld in

San Francisco is gearing up to start selling a FAX machine for the ST, the first in the world. Called **The Zephyr Fax**, it will retail for \$1495, probably sell for \$1295, and discount for a \$100 or so less than that. With it connected to your ST you can send text or graphics over the phone without putting any paper in the FAX or you can disconnect it and use it as a normal FAX. The machine is FCC approved and ready now, the software will be ready to have the package on the market by 1 March, according to Yerger. Several months later software being developed by a freelance programmer who worked for both Epyx and Atari and who knows the protocols should be ready to turn it into a true ST FAX modem. If Zephyr Fax makes it, and we presume it will, it should give the ST at least a one-stage boost up to that window of opportunity.

And what about **JRI's Genlock**, the device we have been reading so much about, and wondering if it were but a myth. As you know, Genlock is the ultimate box for use with your ST to turn out VCR tutorials, or VCR tapes of anything you want that is produced on your computer screen. What Genlock does is take your RGB output signal and convert it to a composite monitor signal and at the same time stabilize it so there is no vertical refresh flicker or scrolling. As such it requires FCC approval. Well it's here now for business user's and developers and by the end of February will be available to the rest of us. At \$650 it's not cheap. And it can only be installed by an authorized dealer. But the uses of it begin to glow in your mind as you imagine preparing computerized sales pitches on video tapes, or classroom tutorials, or just about any instructional material you can think of, not to mention a video tape of your trip through Dungeon Master.

**Are ST Laptops Ever Coming.** The Russians are no longer

coming. What about ST laptops? Well, they exist. But they have no FCC approval as yet. If they received it before the end of March, it would still be at least three months before they could be manufactured and distributed. Our guess is September, while Atari hopes for July. In the meantime, how about a \$550 laptop, the Z-88 Cambridge, that is the size of a school notebook. With \$60 you'll get the software and the cable necessary to port your text to your ST after you get off the plane or are just home from school.

**Popularity.** Every time we hear of Atari and the ST's popping up in a new location for new uses, we experience a tiny sense of interest as well as pride. Pride that other people are catching on, thus confirming our original judgement, "This is the machine!" New ST'ites are the two comics, Robbin Williams of TV fame and "Bobcat" Goldthwait of Police Academy 2-4. About the time they walked out of an S.F. computer store in mid-January, the local radio station, KKHI, also converted to the Mega's to do their daily business.

**How Did Nintendo Do It?** Nintendo was the Xmas toy of toys. The cabbage patch doll, the hula hoop, the VCR, the Barbie Doll....the runaway computer game toy that could have been Atari's game machine, but wasn't. Nintendo was being played in the aisles of department stores in the mid-west; it was sold-out 10-days before Xmas in the East. Why? How could something that in effect has been around for several years in one form or other become an instant Xmas craze? In a word, advertising. Saturation advertising on Saturday mornings, when every kid worth his weight in fantasy and imagination is watching the TV cartoons. By noon his mother has heard the word, Nintendo, a half-dozen times. By bedtime as many

again. And after several weeks of this, when the billion dollar question, "What do you want for Xmas," is asked, it's redundant. The average child has already told his parents countless times. He has told fathers who are convinced the Atari is the only machine, and unconvinced them. And thus is a merchandizing star born over a toy factory. With Xmas over, Nintendo fades away, no? No. They had a monster booth at the Consumer Electronic Show in Las Vegas last month. Atari didn't participate; only intensifying rumors, recognized as such, that Atari would soon go Chapter 11.

**Hats Off Award.** Our award goes to Spectrum Holobyte for the software hit of the season. *Falcon*, the smashing F-16 game simulation. Graphics are stunning, with more color on the screen than you've ever seen before in a game and play action that keeps your mouth dry. Dealer after dealer from the East Coast to the West proclaimed it the number one game hit of the holidays. Retailing at \$49.95 it is worth every one of those 50 dollar bills. Hat's off, Spectrum Holobyte!

**Other Movers.** We have commented before on the simplicity and cunning structure of *Tetris*, the arcade game that requires only that you rotate falling blocks of seven different shapes so that they land to form a solid continuous line at the bottom of the game's play screen. It really is easy, if you form the line which then sinks out of sight. But leave a gap and the blocks pile up on the next line, and the next til they hit the top and the game is over. Easy but it's surprising how often your sense of object form and fit fails you and.... the pressure can build up. A must for even closet game players.

Along with this and *Falcon* was the DTP program, *Calamus*, just put out by ISD of Canada. (Watch

for our review in the next issue.) At \$299 it is one of the most expensive pieces of software available for the ST. But sell it did throughout the land. One of the reasons for the talk about it on Genie and Compuserve and general excitement is the quality of its output on laser, or even dot matrix.

**Fast Out the Door.** Dealers around the country are beginning to realize that one edge that Commodore, IBM, and Macintosh dealers have over them is not power, price, or quantity of software, but rather credit. Credit where you can go into a store and come away with a computer setup and not have added \$1000 or more on your bloated charge card or performed equally deep surgery on your saving account. Montgomery Ward has a whirring, revolving door with people carrying out Ward's particular brand of the IBM clone, with but a small nick in their Ward's credit card. IBM and Macintosh will put you into the computer world for less than \$76 per month. Dealers have noted that the Atari 8-bit machines were selling this Christmas, selling because they demanded only a manageable fistful of cash. Several Atari dealers have told us they probably could have quadrupled their computer sales if Atari had followed suit and made credit available that dealers could offer to the customer, after a wait of only a few minutes for a credit approval from Atari. One unconfirmed report has it that the Brothers Tramiel made a considerable effort last fall to do just that, arrange with a credit company for dealers to be able to offer qualified buyers on the spot credit. This was to be ready for the Christmas season. Then at the last moment the deal fell thru, reportedly because the credit company tried to up the ante. Based on the record it may have been the other way. Which-ever, nice idea, Atari. Keep at it.



January, 1989

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### SpartaDOS X Arrives

At the end of the year, ICD, Inc. released its newest version of the popular *SpartaDOS* program. ICD has long been a supporter of the Atari 8-bit market. Among the company's most popular products are RAMBO XL, a 256K memory upgrade; the US DOUBLER, which expands the 1050 into a true double-density drive; and the P:R:CONNECTION, a hardware device which provides the user with a standard printer port and two RS-232 type serial ports for greater flexibility in attaching the Atari to printers and modems.

*SpartaDOS X* is housed in a special ICD cartridge that plugs directly into the computer and provides a piggyback extension for an additional cartridge. According to ICD, it is capable of "...limitless applications and accomplishments for all Atari 8-bit computers, including the original Atari 800 when upgraded with an Axlon-compatible memory board."

Apparently *SpartaDOS X* employs full use of extra memory with RAMdisks supported up to 1 MB and high speed operation when teamed with either the Indus GT or Atari XF551 drives. Furthermore, according to ICD's press release, it also possesses lightning-quick ARC utilities credited for storing, compressing, and extracting files with record-setting speed and efficiency.

The suggested retail price for the cartridge is \$79.95. For more information call or write: ICD, Inc., 1220 Rock Street, Rockford, IL 61101, Attn: SDX, (815) 968-2228.

Anyone who owns the new cartridge and is interested in writing a review of the product should get in touch with me at 225 Mosley Drive, Syracuse, NY 13206; (315) 437-2456.

### Video Game News

Before the Christmas shopping season was too far along, Atari announced a number of bonus programs to entice potential video game machine buyers away from the Nintendos and Segas and toward the Ataris. Between November 21 and December 31, any consumer who purchased an Atari 2600 or 7800 system received a bonus of two free game cartridges. Any persons who already owned a system received a free game for every two that they purchased. As mentioned in previous columns, Atari also offered a \$50.00 rebate on its XE Game System, and something called the "Atari Advantage Collector Program." The latter involved purchasing a goodly number of games in return for various incentives, including Atari T-shirts, free cartridges, reduced prices on game hardware, and a

chance at winning a seven-day expense-paid trip for two to California.

In addition, Atari doubled its advertising budget from the previous year, hoping to double its video game sales for the third consecutive year in a row. After hiring a number of sports stars to hawk its products and veteran game designers (e.g., Nolan Bushnell) to create new cartridges, Atari's commitment to the game market was further solidified.

In late November, Atari announced the sale of its 26 millionth game system. According to Michael Katz, president of the company's Entertainment Electronics Division, Atari has sold more than twice as many video game systems than any other company.

While this may sound impressive, two facts must be noted. Only three million of those machines were sold since 1985. Nintendo obviously has sold a great deal more than that amount since the two companies have been competing. Unless these promotions work, the Atari machines will continue to be to Nintendo what the Odyssey and Intellivision systems used to be to Atari—also-rans.

### Letter Writing Campaigns?

Few Atari 8-bit owners expect major software companies to release all of their products for the 8-bits. After all, how many of our machines are out there and in use compared to the number of C-64s and Apple IIs? Nevertheless, we would like to see some of the best products available.

Recently, I had the opportunity to speak with Jean Tauscher of Origin Systems, the company which brought us most of the *ULTIMA* series. Although not a fan of the games myself, I have a friend who was extremely disappointed to learn that Origin is not planning an Atari 8-bit version of *ULTIMA V*, the newest in the series. When I asked Ms. Tauscher why this was so, she replied that *ULTIMA IV* (on Atari) had not sold as well as it had on other computers. However, there did seem to be a sprinkling of interest still out there for Atari versions of Origin's products. If she received enough letters from Atari owners asking for an 8-bit version of *ULTIMA V*, then the company would seriously consider going ahead with the translation.

For all *ULTIMA* lovers, it would make good sense to follow Ms. Tauscher's advice and to write her. She may be reached at Origin Systems, Inc., 136 Harvey Road, Building B., Londonderry, NH 03053.

I would be interested in finding out what programs our readers would like to see translated to the 8-bits. If you get a chance, drop me a line with your wish list

(maximum of five titles of all types). I'll compile the results and publish the names of the top five or so titles in a forthcoming issue. Then I'll get in touch with the manufacturers on the phone and by letter, and ask that each of you write to those same people. Who knows, it might work. If it does, please do not pirate copies.

## 7800 Coverage

In order to extend our support for Atari game hardware, we have decided (tentatively) to begin including reviews of Atari 7800 game cartridges in CN on a semi-regular basis. After all, a number of our readers have been considering the purchase of a 7800, and many others already own one. Apparently, as great as the XE Game System is, for some it is too bulky to leave attached to the living room television. Also, for those who already own a 2600 or want access to additional games (some not available on the Atari 8-bits), the 7800 is the logical choice.

As a replacement for the old 2600, the 7800 is a great value. Not only are all of the old 2600 cartridges compatible, but many of the newer 7800-only games are quite good. Furthermore, some of these titles have yet to appear in 8-bit versions (e.g. *Winter Games*). This might be the only way to own them without having to purchase a non-Atari, 8-bit computer (I won't mention their names).

Anyone who has a 7800 and owns some cartridges he would like to review should get in touch with me as soon as possible. We also are interested in including reviews of new 2600 releases. Comparison/contrast analyses between the 2600, 7800, and possibly 8-bit versions would be most welcome.

## One Year and Counting

When I accepted the 8-bit editorship last February, little did I know how difficult and time consuming the job would be. Gathering news, seeking recent products to review, finding authors and reviewers, reading and editing copy, and producing a column of my own have kept me quite busy, thank you. Hopefully, my efforts and those of the ranks of 8-bit contributors have paid off.

In order to continue filling as many pages as possible with 8-bit information, we are going to need your help. If you hear of a new product or any other newsy item, or would like to write a review of a personal favorite, or have an article in mind about how you make use of your Atari, please let me know. Send all news items, reviews, and articles to me on disk (DOS 2 format), using any compatible word processor (capitalize titles). Hard copies are not necessary.

As of yet, we have no reviews of the new Atari

modem, *SpartaDOS X*, or *DOS XE*. A comparison/contrast of the latter two would be of interest to our readers. Other c/c possibilities would be *Diamond OS* vs. *GOE*, *The Newsroom* vs. *News Station* vs. *Typesetter*, or *Atariwriter Plus* vs. *Paperclip* vs. *The First XLent Word Processor*.

Articles on entertainment software also would be welcome. Many Atari owners are not familiar with the merits and demerits of different genres of programs or of products within each genre. Analyses of the best and worst of sports programs, battle simulations, adventures, arcade games, and the like could prove invaluable to prospective software shoppers or their gift-giving spouses. Likewise, information on educational software would be of help to parents in selecting items for their children.

Unfortunately, many titles are no longer readily available through retailers. Much still can be found in store bargain bins, by mail order, or second-hand from individuals. As long as there is an 8-bit item out there for sale, these types of articles are worthwhile.

If you have anything to contribute, please send it to me at 225 Mosley Drive, Syracuse, NY 13206. The phone is (315) 437-2456.

That's all for now. Have an enjoyable end-of-winter.

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# Spectre 1.75 Released

As of November 9th, 1988, Gadgets by Small released version 1.75 of the Spectre software. Also included with this release is Transvertor 4.20.

### Bugs Fixed

Here are some of the bugs that the new version fixes:

If you used 64K ROMs with a 1 meg ST (832K mode) it didn't work. It did work on a 4 meg ST in 832K mode; that's why it didn't show up. Besides, very few people are using 64K ROMs in the Spectre, so most people weren't even aware of this bug.

- Again using 64K ROMs, with a 1 meg ST in 512K Mode with the Cache on, it didn't work.
- Using a 512K ST, the Spectre didn't work. The beta testers couldn't find this one since none of us had a 512K machine.
- SLM804 laser screen dumps (Shift-0) locked the machine up in 2.5 meg mode.
- Using a 1 meg ST in 832K mode, Shift-Undo would not reboot the system, it just locked up.
- Using a 1 meg ST in 832K mode, if the Spectre crashed, hitting the Return key to reboot recycled Spectre back to the crash page in an endless loop.
- The SLM804 laser support caused memory trouble on a 4 meg ST.
- The 2 meg mode was unselectable if the SLM804 laser option was also selected.
- If an application crashed, the Desktop file got corrupted and upon reboot, the Spectre

crashed continuously. This was by far the biggest annoyance for all users. Now that this has been fixed, the Spectre has become extremely reliable.

Transvertor 4.2 has a number of added improvements over it's previous version 3.10. The two major improvements are it now works with hard drive partitions (MFS only) and it will write boot blocks to floppies (MFS only). The latter improvement is important since most people who got their system/finder files off of GEnie or other sources couldn't boot off floppies because the boot blocks were missing. It is a definitely Catch-22 because Gadgets can not legally distribute a boot disk (with system/finder) since this is Apple's copywrited software. Transvertor also comes with a very nice instruction manual.

If you haven't received this FREE upgrade by now then you probably didn't send in your Spectre product registration card. In any case, contact Gadgets by Small for the upgrade.

### Bugs-Problems

As with any new Software product, bugs and other problems go undetected until the right (or wrong) combination of elements presents the problem. Some of the problems with the Spectre are just memory related....remember there is no such thing as a 832K Macintosh. HyperCard is a good example of this; it's quite limited with a 1 meg ST.

Other problems are hardware related. For instance, Filemaker 4 won't work with Spectre because it tries to access the SCSI chip inside

the Mac. Another good example: HyperCard won't print unless the ImageWriter driver is used. It appears that Apple may have done this on purpose to push their own printer, although an ImageWriter clone will print with HyperCard.

As far as bugs are concerned, some very strange things have appeared. For instance, MicroSoft Word 3.0 through 3.02 does not work properly with Spectre. It may take some time to fix this one, although MicroSoft is about to release version 4.0 which may solve this problem. The strange part about this one is that Word works fine with the Magic Sac. Other programs which worked with the Magic Sac now don't work with the Spectre. An example of this is any graphics/text adventure created with World Builder...they lock up the Spectre!!! This should be fixable.

Here is a rundown on some of the more common problems/bugs with the Spectre. Some are either fixable by the user or Dave Small, and some are probably not fixable at all.

MultiFinder will not work with a 1 meg ST. You need at least 2 meg to use it. Even then, in order to make it work, you will have to change the System Heap to at least 150K larger than normal. FEdit can be used to accomplish this, but you need to know what you're doing to do this. An easier way is to use Widgets, which comes with Disktop (a must have DA). Widgets will automatically set the System Heap by simply typing in the size you want it to be. Also remember to have the file DA Handler in the System Folder when you boot up. If you don't, MultiFinder won't let you access any DAs.

MacWrite 2.2 and 4.5 don't work very well. Use MacWrite 4.6 or 5.0 with Spectre.

If you boot up with Finder 6.1/System 6.0 and up (System 6 Software), HyperCard locks up. Use Finder 6.0/System 4.2 for now. This bug may be fixable.

HyperCard crashes when an error dialog box appears (usually with 1 meg STs) due to lack of memory. Accessing the ToolBox will do this. Try using an earlier System/Finder such as 5.3/3.2 stripped of most DA's and Fonts to conserve on memory. The newer Systems/Finders are real memory hogs. Also, use the latest version of HyperCard which is version 1.2.1....it uses about 50K less memory.

If you get a Mac "System Error" dialog box, clicking on Restart locks Spectre. Since this works on the Magic Sac it should be fixable on the Spectre.

Be careful with this one, it usually shows up on machines with 2 floppy disk drives. Sometimes ejecting disks don't get reported properly to the screen. That is, the dialog box that says "Please Insert Disk\_\_\_\_" appears, but a flashing A or B doesn't appear. I have trashed a few disks with this bug...again fixable.

I could go on about a few programs that just don't work with the Spectre....but I'll save that for a compatibility list I'm working on. I will say this, the Spectre is an extremely solid product considering it's short lifetime. It's also much more Macintosh compatible than the Magic Sac, but this is an unfair comparison.

## Farewell, Not Goodbye

With this issue of Current Notes, I will have been authoring this column for just about 2 years. It's been a lot of fun, but I'm finding it more difficult to find the spare time necessary to pursue it on a

regular basis. So next month, the ST/Mac Connection will be passed on to Doug Hodson. Doug has been writing a Magic Sac Tips and, more recently, a Spectre Tips column for the Miami Valley Atari Computer Enthusiasts. I'm sure Doug will carry on the traditions of this column and CN Mac fans will be well pleased.

I do plan, however, to contribute some occasional reviews and to continue working on the Magic Sac and Spectre library disks, so look for some really good additions to these libraries.

Until next time.....

## New Library Disks

This month, the Current Notes Magic and Spectre libraries will each grow by two disks. Here is a run down on what is on each disk.

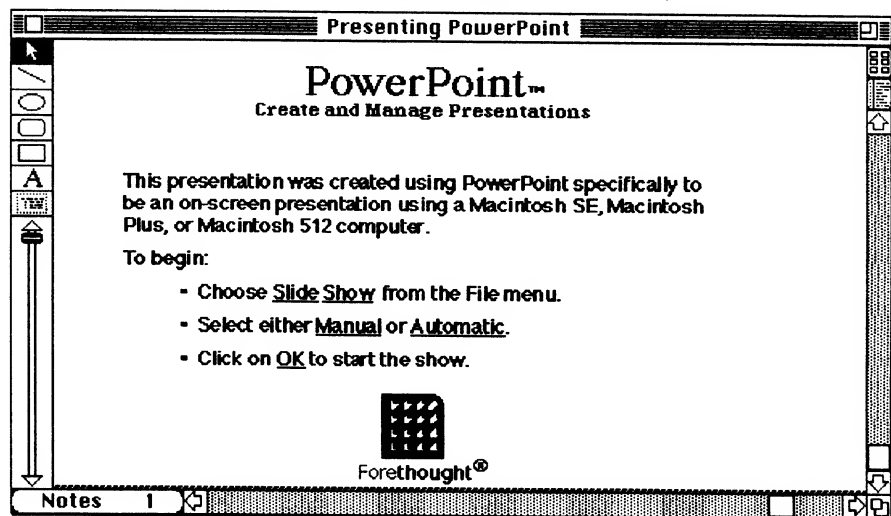
**Disk M66: Intruder** contains a text adventure game. This game will take several intense hours or days to solve. It was created with World Builder and is not compatible with Spectre. The disk also contains a doc file with game hints.

**Disk M67: Fonts #11** contains 14 new fonts as follows: Cavanaugh 18-36, Icon2 12-24, Fletcher 18-24, Math-Greek 12, Toyland1 36, Toyland2 36, Troyes 10-12-20-24, Memphis 24, Provo 10-12-20-24, Scan 72, Tombstone

24, South Bend 18-36, Klingon 24-48 and Wall Street 9-10-12-14-18-20-24-28-36. This disk, as with all the other font disks in the library, is compatible with both the Magic Sac and Spectre.

**Disk S5, Games #1** contains six games for use with the Spectre 128 only. They are Banzai (shoot your mortar shells to kill tanks and the enemy soldiers), Monopoly 4.0 (the best computer version of the board game I've seen), ATC 4.0 (Air Traffic Controller game similar to Kennedy Approach), Mines (move through the maze without stepping on a mine), New Daleks (updated version of this old standby), and finally Brickles 4.0 (breakout with several new options).

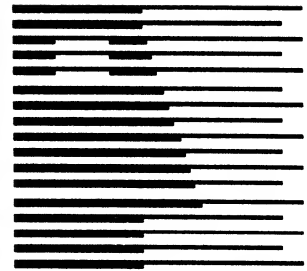
**Disk S6D: Powerpoint Demo** contains a fully working demo version of this popular Mac program for planning, composing, and creating complete presentations. It is very useful for creating slides and overhead transparencies. It gives you the capability of creating complete desktop presentations. The only limitation of this version is that if you choose to print or use the slideshow, "Demonstration Version" will be printed on each slide. The save feature of this version also works. Sample files are also included on this double sided disk. This disk **IS** compatible with both the Magic Sac and Spectre 128.



# STARTING BLOCK

## Hard Needn't Be Terrifying

by Richard Gunter



**Horror Tales Exaggerated.** A hard disk drive is a glamorously tempting and potentially valuable addition to an ST system. But hard drives are rather expensive, ranging from around \$600 to your whole bank account. They also are a little alien and frightening. I think every ST owner has heard horror stories about the terrible things that can go wrong with hard drives: scrambled files and FATs (I thought FAT was the stuff around my middle), and of course, the awful "crash" that leaves nothing but chaos in its wake. Some of those horrible tales have been exaggerated in retelling, but certainly many of them are real.

Don't let that deter you from adding a hard disk drive to your system. A little knowledge about the things and a healthy dose of caution should help you keep the potential problems at bay. Besides, an ST can be a real joy to use with a well-managed hard disk in the system.

**What Is A Hard Disk, Anyway?** In concept, hard disk drives and floppy drives are similar. In both, a rotating platter (disk) coated with magnetic material, usually a metal oxide, spins beneath a read/write head. Particles of the magnetic material act like tiny magnets, each having a north and south pole. When recording data, the write head works as an electromagnet, causing these tiny magnets to change their polarity in a precisely controlled manner. The changes in polarity represent bits of data (ones and zeros). Reading works much the same, in reverse. As the disk spins beneath the read head, those polarity changes create weak electric currents in the head, which is now functioning as a detector. Controllers and other electronics, cables, and software to manage the whole business complete the package.

The huge differences between hard drives and floppy drives arise from the differences in speed and the greater mechanical precision needed in the hard drive. Hard disks hold so much more data, you see. To achieve their high capacity, the magnetic material must be smoother and more uniform, and the disk must spin much faster. An ST floppy disk spins at 300 revolutions per minute (rpm), while a hard disk may spin at 3600 rpm. Those little magnets must be smaller, the polarity changes closer together, the distances between tracks smaller, and so on.

Why is a hard disk hard? The head must be quite small, and very close to the magnetic material. But, at

3600 rpm, the head can't be allowed to touch the material (unlike the floppy drive). This means that neither the head nor the disk surface can flap in the breeze. So the disk is made as a rigid platter, such as aluminum, coated with the magnetic material. Moreover, the head is made so that it literally "flies", or floats, above the disk surface on a cushion of air created by the disk's rotation. That cushion may be only a 1/100,000th of an inch thick.

The air cushion is too thin to tolerate any dust particles at all, so consumer units are usually sealed. Also, there's often more than one head and more than one platter. With each platter, as with a double-sided floppy disk, one head can be placed over the upper surface, and another below the lower surface.

Any contact between the head and the disk will scratch the magnetic coating. This is a "crash"; the magnetic coating at that point is irretrievably damaged, and anything recorded in the area is lost.

When the drive isn't operating, the heads must have some place to go; it wouldn't be too swift to have them simply slam down wherever they happened to be when power was turned off. (Crash time)! There are several ways to handle this "parking" problem. The heads can be commanded to an unused position, where they can drop with no damage to the data; or they can be mechanically lifted and retracted completely. Parking can be either manually initiated through software, or done automatically when the unit detects loss of power. It depends on how much money the manufacturer (and the customer) want to spend.

I've left out enough to fill up more than one engineering course and will probably be accused of grossly oversimplifying, but this should be enough for our purposes. If I've whetted your appetite to learn more, be sure to look to Bill Price's in-depth coverage of Hard Drive choices elsewhere in this issue.

**Do You Need A Hard Disk Drive?** Well, it depends on how you use your system. If you use your ST only for games, and maybe a little light-duty word processing with ST Writer or some such, probably not.

Commercial games usually operate from floppy disk, and force you to reboot to load a new game. Many won't run from a hard disk drive, even if the program is unprotected.

Here's a crude test for checking your needs. Take mental note of how often you have to swap floppies



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when you use your computer. Ask yourself how many swaps you'd save if you had two floppy drives. It could turn out that all you really need is a second floppy drive. Much cheaper than a hard drive.

Look at the applications you customarily run. Do you have to swap floppies a lot in order to use them? Do you run several applications, each of which has to be loaded from a different floppy disk? Do you use applications that are storage hungry? This includes almost any top-of-the-line word processor, some spreadsheets, any desktop publisher, and any heavy-duty graphics application. Or do you just have a lot of data that you would like to have at your fingertips?

If the answer to any or all of these questions is "yes", then a hard drive may be just what you need to get the most out of your system.

**Selecting A Hard Disk Drive.** I've seen several magazine articles on this subject lately, and won't even try to reiterate what they said. I don't agree with all of it, anyway. Here are my highly subjective opinions, for what they're worth.

**Build or Buy?** I won't try building. I'm a klutz, as apt to pick up a soldering iron by the wrong end as not. If part of your hobby is fiddling with equipment and building things, and you really want to give it a try, go ahead. There are kits available that make the project more accessible. Or, if you're really bold, you can get the parts and do the whole thing yourself. (If you're that bold, you probably aren't reading this article!)

A word of caution if you want to go one of the do-it-yourself routes. Don't do it if your sole motive is saving money. You may in fact save quite a bit of money, but you may not. It depends on how skilled you are, and where you get the parts. I've heard recently that some kit vendors aren't the most dependable folks around, and you could find the experience frustrating.

I don't know if it means anything, but the people I know who have had serious problems with hard disk drives seem to be mostly folks who like to tinker with, or build, their own equipment. I find that suggestive...

**Internal or External.** It's now possible to get one installed in the Mega's logic box. If you select such a drive, make sure that warranty and repair support are adequate. Opening the computer usually voids the warranty.

These Mega units are new products, and there's little information available on their quality and reliability. Biggest advantage is convenience. The internal unit usually works off the computer's power. One less switch to flip. With internal cabling, there's also less junk dangling behind the desk.

Disadvantages? Well, if the internal hard drive fails, you're out of business. You'll have to take the whole logic box in for repairs. It also won't be very convenient to run the system without the hard disk. If you're concerned about the danger of viruses, guarding against them will be more difficult if you can't turn off the hard drive separately.

**Which Drive?** Buy a hard drive made by a reputable, well-known manufacturer, and make the purchase (as with anything expensive) from a merchant in whom you have confidence. Preferably local. I once bought an expensive telephoto lens from a mail order establishment, and there was a problem with it. 'Twas a nervous time, and several long-distance phone calls before the problem was fixed. The incident permanently soured me on mail order.

Try to locate other users of the unit(s) you're considering, and get their opinions. If possible, find out something about how they're using the drive. A BBS operator probably stresses a hard drive more (and differently) than most of us ever will.

If you can, try to project your storage needs, based on how much data you currently need to put on the hard disk, and the rate it has accumulated.

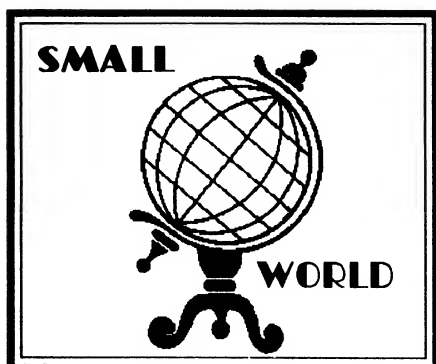
Then there's Gunter's Law (probably not original): the amount of data expands to fill all available space. By that rule, one should buy the biggest unit one can afford...

A few years ago, 10MB was considered generous for business users, and now 30MB seems to be the norm. Just to pick a number, I'd say 30MB isn't a bad starting point.

**Features.** Do look at the features of the drives you're considering. Self-parking heads are available on some units, and could be a useful safety feature. Mine has to be manually parked, but it only takes a few seconds, so I don't mind.

Average access time is the time required to move the heads from one track to the next, and should include the time required to settle down in the new position (settling time). It's a fair performance indicator. A fairly speedy drive may be important to you if you're a power user of disk-intensive software. Mine is rated (says the manufacturer) at 68 msec, which is not blindingly fast, but adequate (for me).

Poor management of your hard drive can completely overshadow the unit's performance capabilities, though. Proper management of your data is important if you want to keep any hard drive running well. Next time, we'll take a look at managing the data on your hard drive.



# NUMBERS

*By: Dave Small*

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I'll tell you something that's neat . . . numbers.

Now when I say "numbers." well, most people have bad associations with the word. Numbers mean checkbooks to be balanced, numbers mean calculators, numbers mean Professor Horowitz's Algebra I class in high school. Yecch, right?

But what I have sitting here in front of me is something that makes numbers fun: a computer.

Suddenly all the grind I used to associate with numbers is gone. No more subtraction drill practice. No more multiplication tables.

This ST computer handles incredible amounts of numbers with ease. Unless I'm much mistaken, I could add a million numbers in one second in this computer. A million a second ...

In fact, I'll bet you didn't know the level of reality that your computer runs at. It only knows of numbers. Let's delve in a moment.

## True Reality

Inside the computer, numbers are represented by wires that are either electrically on (at five volts) or off (at zero volts). Computer makers find it convenient to group the wires in sets of 8, 16, or 32; we computer science whiz-type people call 8 bits a "byte," 16 a "word," and 32 a "long." But it's all on-off wires.

Anyhow, with 8 wires, there's 256 possible combinations of ons and offs, so a "byte" can represent

up to 256 different things. Numbers? Sure, 0 to 255. (Computer sci types always start counting at zero.)

The 520 ST has half a million places to store numbers--pigeonholes, if you will. 520,000 places that can individually be set to any number from 0 to 255.

This may not seem useful at first. But let's continue. The numbers stuffed in these places can represent numbers ...

*But it doesn't have to be numbers.*

For instance, the letters the ST uses for text are represented by numbers, by a code called ASCII. (American Standard Code for Information Interchange--pronounced "ask-key"). In this code, the letter "A" is represented by the number 65, "B" is 66, and so on. Punctuation is generally in the 30-50's; "control" characters (control-G is a bell, for instance) are under 30. Lower case characters ("a") begin at 96.

Thus, even though you think you're processing words, all the computer is doing is moving numbers around. It doesn't know, nor even care, that those numbers happen to represent characters to us people--"Hey, I just move numbers, bud."

Let's get into a typical word processor and follow what happens when you press a key ("A") and the letter appears on the screen, just to prove it.

You press the "A." The keyboard microprocessor chip (a stand-alone computer all by itself! See, there's more than one in the ST) sees a pattern of on and off wires that represent that key go active, as you press it down, then

let it up. That becomes a number. The keyboard requests an "interrupt" of the 68000; the 68000 suspends what it was doing, and reads the number from the keyboard chip, and stores it away for later use.

(By the way, the mouse is also handled by the keyboard chip. During mouse movement, a positive blizzard of numbers is moving from the keyboard to the 68000, as new co-ordinate numbers are sent.)

The 68000 looks up the number the keyboard microprocessor gave it, and discovers it was an "A" you pressed. (The keyboard doesn't use ASCII codes for numbers, so the 68000 has to translate.)

The 68000 is running a word processing program. Since you've typed in a new "A," it's got to be plotted onscreen. The 68000 looks up the co-ordinates of where the cursor is.

Now I have to get across a new concept: display memory. This is regular old read/write computer memory--just lots of places to stuff numbers, with values from 0 to 255--with a neat feature: Whatever is in it is also displayed on the screen. Since the Atari display is 640 x 400, which means 80 bytes are displayed per scan line, 32,000 bytes are displayed.

Now it's a "bitmap," meaning individual bits are displayed. So, to display the "A" you just typed, the 68000 has to copy 16 bytes--the image of the letter "A" in bytes--from the "character set" to "display memory." Then, when the screen is next "refreshed," or displayed, the "A" will magically appear.

In other words, the numbers now represent dots on the ST screen.

So, the ST goes ahead and does the copy of the "A." You see the "A" you've just typed, plotted up onscreen instantly, from your point of view.

But look at it from the 68000's point of view. It hasn't done any word processing. All it's done is read in a number, translate it to another number, then copy 16 numbers from one place to another.

Numbers. All it has done is move numbers.

## Musical Numbers

Numbers can represent another really cool thing, too. They can represent the position of a speaker's cone.

See, when you listen to music, you're really listening to pressure waves in the air, caused by the movement of the speaker's cone. Normally, this movement is too fast (and too small) to see, but try looking at a bass speaker during a low note, and you'll see it jump around. A big speaker might move back and forth an inch of "cone travel."

About the lowest that people can hear is 20 movements a second; the highest, around 20,000 movements per second. If you've ever had a teething child, your hearing is probably reduced to 15,000 or less; I've had three, so you can imagine...

Let's say the total "travel" of the speaker is an inch, just for an example. Let's assign the number 0 to "all the way back," the number 255 to "all the way forward," and the numbers in between represent different speaker positions in between. Thus, this information fits into a byte.

Voltages drive speakers; the more voltage you give the speaker, the farther out the speaker cone travels.

Okay, now let's start listening to music, and start copying down the speaker cone's position real quickly

during that time period. We have to do this a few thousand times a second, so it's clearly a computer's sort of job. (Remember: the ST can do a million a second easy. A few thousand a second is a Sunday afternoon loaf for the ST).

If we listen, and record, the speaker position at 5,000 times per second, we can make a record of whatever was played on a computer disk, as a data file. If we then play back that record by setting the speaker position to whatever it was originally, 5,000 times a second, we'll hear an exact recording of what we heard before.

*Of any sound at all.*

Now, 5,000 doesn't sound very good, although stuff like speech is very recognizable. There's a rule about this "digitization" (i.e., converting to numbers) that says you'd better "sample" twice as fast as the highest frequency you're going to plan on recording. Human ears can go about 20 to 20,000 cycles per second, unless you're like me, in which case you're low on brain cells anyway. But I digress.

So, if we just sample where the speaker is (the voltage driving the speaker through the speaker wires will tell us that) at 44,100 times per second, we can create a disk copy--numbers!--of ANY SOUND AT ALL. From the recording process, we get 44,100 numbers per second, written to a data file, on your ST disk.

To play it back, we read in that data file, and just re-create the voltages the numbers represent 44,100 times per second. (Remember, with a computer, this is a slow crawl speed-wise.)

Remember records? Remember scratch, hiss, and pop, when you got some dust on the record, when your little brother skritch'd the needle all the way across the LP? Well, forget that now; it's all numbers, on a disk file. Numbers don't decay. Numbers don't

change. Numbers don't degrade. Numbers don't wear out. Disk getting a little old? Copy it to another. The quality of the data never changes. This is an important concept. "Analog" recordings, like LPs and magnetic tapes, do degrade; numbers don't degrade. You can get an exact, perfect copy of them anytime--they are digital.

What I'm getting at here is perfect storage of musical recordings. Numbers do not screw up, degrade, decay, warp, and all the stuff that records and tapes do. Numbers don't hiss or tangle up inside the player. And they copy perfectly.

Someone else had this good idea, and came up with something called a CD-ROM, or "CD." This is a bunch of numbers, written very tightly, and read back by a laser. That's right; a compact disk. In it is a sampling of what the speaker looks like every 44,100 times a second, and I believe they use a little finer resolution than just 256 possible positions--maybe 65,536 positions (16 bits). And that's where the crystal clear sound of a CD comes from.

It's just numbers. You can pop that SAME CD into a computer CD player and read off a long data file full of numbers.

It's just numbers!

The 1812 Overture, with "digital cannons" (They warn you not to turn it up too loud, because you can blow your speakers if you do so). Elton John and Pink Floyd. Beethoven. All on the CD's on that shelf to my right; all are just numbers. The player reads in 44,100 numbers each second, a slow crawl to computer technology, and makes voltages for each number, and feeds them to the speaker through your amplifier.

The music that's inspired a lot in me, that's given me goose pimples from time to time, that's cheered me up when I've felt down,

that's kept me company during many long lonely nights—it's just numbers. The text I've been working on in this article is stored as—just numbers. The Spectre 128 source code is stored as—just numbers. And, yes, the money I make with the Spectre is (Chorus:) "Just numbers."

You may as well know that everything else is going to numbers, too. The telephone system now sends numbers in place of your voice, digitizing fast enough so you don't notice the difference. (They go around 7,000 times a second, I'm told). Why numbers? Again, they don't decay or degrade, and can be sent station to station perfectly.

Your car's carburetor is probably digitally controlled now, by a computer, with numbers. (In fact, there's even "hot rod" ROM chips, the program for this computer, that you can replace in your car to pep up its performance. No more porting and polishing, no more twisting wrenches—just swap your car's ROM. This is real, too...)

The "freeze frame" display on my TV set upstairs is just a digitized TV picture; that TV has a bunch of dynamic RAM chips in it, just like this ST computer does. That picture of the Broncos screwing up so horribly at the last super bowl is just ... numbers.

Finally, let me tell you of the forefront of technology. Each year, a group of people gets together for a two-day bash called the "Hacker's Convention." The organizers try to keep out the marketing and sales types, and just bring in the engineers and programmers that keep the industry going. It's a weekend of rubbing elbows with people you read about in the papers.

While there, I got to see many things. Two that impressed me very, very much are:

1) A flexible CD-ROM disk printed on some sort of vinyl. I don't know the manufacturing process, but I saw a roll of CD-ROM disks, much like a roll of disk labels, ten feet long, with a CD-ROM circle stamped each foot or so. Production cost for 500 megabytes of storage: 2 1/2 cents.

2 1/2 cents for 500 megabytes of data. Let that sink in.

When the price was mentioned, the hall filled with hackers—some of them jaded computer pros that had "seen it all"—stood and cheered.

This is going to cause changes I can't even imagine; storage is shortly going to be next to free.

Whole sections of computer science dedicated to optimizing storage are going to become useless; whole new techniques for dealing with massive amounts of information are going to have to be developed. In particular, MS-DOS and such silliness, which use "sub-directories" and 11-character filenames, are going to have to go; we do not need disk systems designed to optimize disks anymore. We need disk systems designed to be people-usable at the expense of a little disk storage.

2) The new PIXAR demonstration film. This was an eight minute cartoon, if you will, produced entirely by computer. The thing is, the computers are getting so good at ray-tracing, shadowing, hidden surface removal, and all the good graphics buzzwords, that *you can no longer tell the images they make from reality.*

This particular film was about a toy robot being chased by a baby, and showed what being a toy was like from a toy's point of view; how would you like to be chased down by a drooling, huge monster that throws toys against a wall? The emotional interplay was clearly shown; the fear on the toy's face, the glee on the baby's face.

What I'm telling you is that this film was created entirely by numbers. It wasn't painted or anything; a computer sat and thought, spat out numbers, which were fed straight into a videotape machine, and played back for you and me.

Remember the "Genesis" sequence from the Star Trek movies? That was also completely computer done. The owl from "Labyrinth" was totally computer generated. All the network logos are computer generated, anymore—even Monday Night Football's logo.

It's all numbers, folks. You'll be seeing more and more of it. Right now, the computers aren't fast enough to do this "real time" (e.g., make it as fast as you can watch it), but with parallel processing, it's entirely possible to do that; costs just have to drop a bit before it happens. (The PIXAR demo took two months on high, high speed transputers to make. Cray machines are also often used for this stuff.)

Numbers. Inside your computer, your text is numbers. This column is just numbers that I modem to the editor of Current Notes—and the modem thinks of it as numbers. The sound coming out of that CD is stored as numbers. Your car, if it's new, accelerates via the numbers of its engine-control chip. And the movies you watch are made from numbers.

Numbers.

A whole new world.

Hardly Professor Horowitz' Algebra class anymore, is it?

I hope this article has given you a little perspective on where computers, and related number technology, are taking us, and how much they've already invaded and colonized your life.

Welcome to 1989, and see you... in Month #3!

--Dave Small

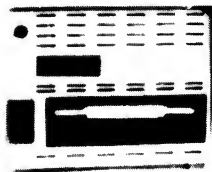


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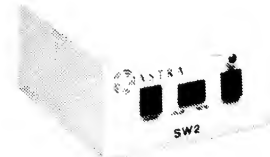
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# HARD DISK DRIVES

## Off-The-Shelf or Roll-Your Own, A Provocative Inspection of Choices, With Prices and Clues on How To Avoid Disaster

By Wm. Price

Those who don't have hard disk drives probably approach them with the same value/burden questions posed for modems—who needs one? On the plus side, hard disks give you finger tip, immediate access to a broad range of your software and text or data files, and they transfer these resources to your ST at “lightening fast” speed. From a practical perspective, the newer and more powerful software almost dictates use of a hard disk. *Word Perfect*, *Timeworks Desktop Publisher*, and *PageStream* are examples. For Spectre 128/Macintosh users, the latest version of *PageMaker* cannot run from a floppy disk. The application program is so large that it requires two double-sided floppies. The two parts must be joined on a hard disk with an install utility. As users demand more robust software, more program code and more bytes are generated and the need for a hard disk and greater internal RAM capacity become essential. Now the owners of 20MB drives are jumping across 30MB to 50 and even 80. Both Seagate and Mini-Scribe offer 110MB drives that cost about \$100 more than one three-quarters the capacity; so why settle for less!

The simplest way to acquire a hard disk is to buy a complete drive system made specifically for the ST. Supra, ICD, Astra, and Atari are suppliers of these drives. But why one made specifically for the ST? Because none of the raw hard drive mechanisms or controllers will work

directly with the ST. There must be a host adapter interface to mate a drive and controller, normally of the ST506/412 or SCSI interface standard, to the ST's DMA port. Supra, ICD, and Berkley Micro Systems (BMS) produce these ST adapter boards and they are available separately or in a kit with other components. So why not buy a kit and roll-your-own to save money? If you know what you are doing, have a lot of patience, and can logically troubleshoot and isolate problems, the answer is, “Go-for-it!” Otherwise, buy a complete ST drive from one of the above suppliers, plug it in, and enjoy your expanded capabilities.

If you already have a drive and need more capacity, there are basically two choices: add another complete drive system from Supra, ICD, or Astra to the existing one, or build the second drive.

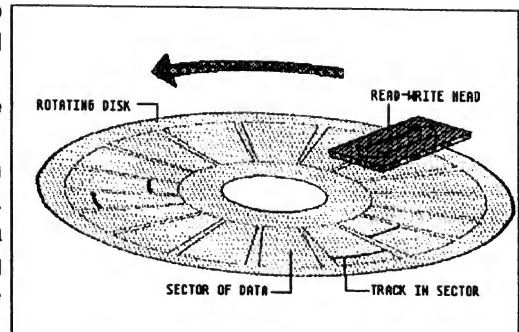
I thought the latter choice seemed attractive, but being uncertain as to what to buy, it was evident that some research was called for. I offer the results of that research to CN readers who might also be considering hard drive alternatives.

First is an overview of the two basic drive types—MFM and RLL. The differences are in capacity, density, and data transfer speed. Second is a review of sector interleaving and what it does to improve

transfer of data. This is controlled by the user when the drive is formatted. Next are options for daisy chaining another drive, and then a summary of all the components you will need to assemble a complete drive system. Finally, a sampling of prices provides a guide to buying and deciding to go for off-the-shelf or roll-your-own. Armed with this information, a better choice can be made. And for those who already have a hard disk drive, you should have better insight to your next moves.

### MFM And RLL Drives

There are basically two types of drives that differ in their encoding and formatting schemes and, consequently, their performance. They are **MFM** (Modified Frequency Modulation) and **RLL** (Run Length Limited). The MFM format, the older of the two, was introduced by Seagate in 1979. You will recall that disk tracks are laid out in concentric rings around the hub—like a target with a bulls eye. Radiating from the bulls eye, the disk and its tracks are divided into sectors much like slicing a pizza. Most hard



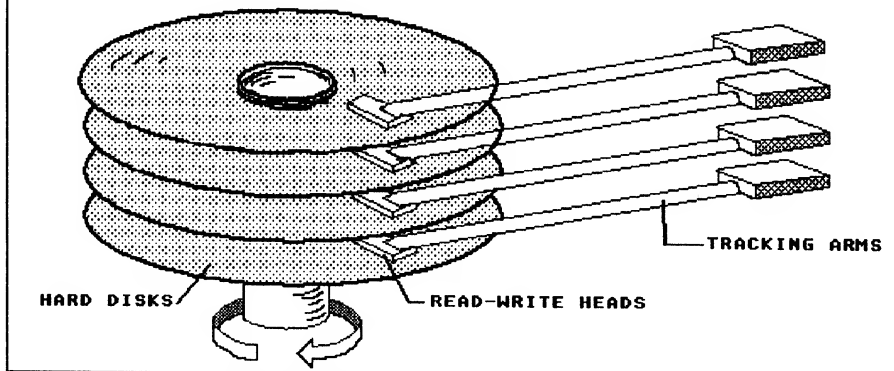
drives have multiple disks or platters, each tracked and sectorized in this manner. For example, one of the 20MB Seagate models uses three rigid disk platters giving a total of six surfaces. However, the very top and bottom surfaces are not used, and for the four remaining surfaces, each has a separate read/write head to independently handle data transfer functions. In this example, each surface has 611 usable tracks, and with MFM encoding there are 17 sectors. This is the first distinction between MFM and RLL—the number of sectors.

For both MFM and RLL, a sector has a usable capacity of 512 bytes. Sound familiar? Floppy disks also have 512 byte sectors. This is a shared standard for floppy and hard disks, their drive controllers, and utilities. The Atari and IBM Basic Input/Output Systems (BIOS) support 512 byte sectors based on the computer method of measuring storage capacity—by powers of 2. (This is familiar as a progression of 1, 2, 4, 8, 16, 32, 64, 128, 256, 512, etc. Sector sizes are  $2^9$ , 1K bytes are more precisely 1,024 or  $2^{10}$ , and 1MB is actually 1,048,576 bytes.)

In 1986, Adaptec introduced a controller with RLL encoding and formatting—a scheme developed by IBM for large hard disk drives used with mainframe computers. The newer RLL format gives fifty percent additional capacity by increasing the number of sectors from 17 to 26. With RLL, a 20MB drive is capable of 30MB capacity, and a 40MB drive is increased in capacity to 60MB. But don't try to use an MFM drive with an RLL controller. RLL requires a higher quality disk surface; so proper matching of drive and controller is essential.

RLL encoding brings with it another advantage. With greater density per track, the read/write heads can access 50 percent more data thereby reducing the number of track-to-track seeks in a trans-

A hard disk contains several hard magnetic disks permanently enclosed to exclude dust. They have a much higher memory capacity than floppy disks. Memory capacity is measured in kilobytes (K) or megabytes (Mb).



fer operation. The data transfer rate for RLL is therefore greater—7.5 megabits per second (mbps) compared to 5.0 mbps for MFM.

Drives are not always labeled as to type. For example, Seagate RLL drives have an R suffix, e.g. ST-277R—a 65MB RLL drive. But there is no similar indicator for MFM. MiniScribe does not use an identifier at all. The distinction can only be found in their specifications for Data Transfer Rate, 5.0 drives are MFM and 7.5 are RLL. Beyond these distinctions in density, track access time may vary from a slow 61 milliseconds (ms) to a faster 15ms. The better price performers operate at a seek rate of around 28ms. Drive platters are either 3.5" or 5.25" in diameter and are stacked in either half or full height depending on the drive capacity and number of platters. The platter and head mechanisms are sealed to support a dust free environment required for such precision operation.

In summary, RLL drives provide 50 percent greater capacity than MFM, and the megabyte cost per dollar is usually less. With this greater density comes a faster data transfer rate.

Beyond MFM and RLL is Extended RLL recently introduced by Maynard Electronics. Instead of a 50 percent advantage, ERL offers a 90 percent increase in capacity on the same size disk

surface. A mechanism the size of a 40MB MFM drive can now have a 76MB ERL capacity along with an increase in data transfer to almost 10 megabits per second.

Hard disk drive developers are not in a coma! Another supplier has announced ARLL (Advanced), Perstor has introduced their ADRT (Advanced Data Recording Technology) controller, and ESDI (Enhanced Small Disk Interface) drives are beginning to appear. But don't wait for this technology. It is more expensive and there is the potential for a new Tower of Babel among drives, controllers, and utilities until a new standard emerges. At least one manufacturer feels that RLL is close to running on the edge of magnetic surface technology, and it is content with addressing the broader marketplace at the RLL plateau. Is RLL safe? You bet! It is a new hard disk standard.

Then what about full versus half height and 3.5" or 5.25" drives? The drive height as well as the disk diameter are functions of capacity. Increased capacity requires a larger disk surface and the addition of platters. Half height drives and 3.5" platters peak out in capacity between 40 and 70MB. Full height and 5.25" drives do need larger cases, they demand more watts, and as a consequence run warmer. Heat is the arch enemy of electronic components; so a good fan and air circulation are essential.

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## Interleave Ratios

As for average seek rate and track access, the rate of data transfer is more important, and the most important factor influencing the speed of data transfer is the interleave ratio. MFM and RLL drives spin at 3600 RPM—12 times faster than a floppy disk. With drives formatted in a 1:1 interleave ratio, the entire contents of a track (either 17 MFM or 27 RLL sectors) can be transferred in a single rotation. However, since IBM PCs were the driving force for production of small hard disk drives, their computer specifications determined how fast data transfer could be. IBM PC's, versus ST's, simply became overloaded at this speed; so a higher interleaving ratio was used to slow the rate of transfer for IBM's.

Interleaving deals with the physical layout and placement of sectors—the logical order is consecutive, but beyond a ratio of 1:1 the sectors are not contiguous or physically adjacent. With 17 sector MFM drives, the interleave ratio can range from 1:1 to 16:1. With 1:1 interleaving, the sectors are in logical order as well as contiguous, and data transfer is the fastest. The slowest rate is with 16:1 where the transfer of one track takes 16 revolutions of the disk. Not very desirable.

The stock IBM PC XT has a 4.77 MHz clock; so it must use the slower 6:1 interleave when formatting. The logical sectors are spaced six apart and thus the data string for a file is continued every sixth sector. With a 6:1 ratio, 6 revolutions are required to transfer an entire track. The faster PC AT can operate with a 2:1 interleave—half the rate or twice as slow as 1:1. The Mac II supports 1:1, but the SE requires a slower 2:1 and Mac Plus can't operate at less than a 3:1 ratio.

What about the ST? With its DMA port and direct access to RAM, the ST can fly along at the 1:1 ratio or a full 7.5 megabits per second using an RLL controller and drive. The ST's DMA supports a 10.6 megabit or 1.33 megabyte per second transfer—the entire contents of a 1040 ST's RAM in one second! When ERL, ARLL, ESDI, and ADRT encoding stabilize into an industry standard, the ST will easily handle their higher transfer rates.

But this high rate can be limited by other factors. Applications software may call for small chunks of data at a time and thereby increase the number of accesses that must be made. Another factor is fragmentation of files. When data is deleted from the hard disk, these sectors will be reallocated and made available. Then as new files are added, they may be spread across several tracks as well as disk surfaces to fill the freed sectors. Read/write heads will be given a workout in accessing a file that is fragmented in this manner, and transfer will be noticeably slower. This can be remedied by *Tune Up* or other utilities that rearrange disk files to place them in logically contiguous sectors. Another major slowdown bug is encountered with the ST TOS. Its File Allocation Table (FAT) search algorithm is terribly inefficient. A significant improvement in TOS 1.4 corrects this deficiency, and the new access rate will actually knock your socks off. Furthermore, a benchmarked transfer of Macintosh hard disk files with the Spectre 128 emulator is faster than with a Macintosh—including the Mac II. The ST is a performer!

## Daisy Chaining Drives

With this background, let's look at options for adding to an existing drive. The Supra and ICD drives fortunately have a host adapter

interface board and a controller that support multiple drives—Supra pegs an outer limit at 16 chained drives. The Berkley (BMS) interface only supports a single drive. If you use the SCSI (DB-25) female port on the rear of the Supra for chaining another drive, you will have to buy an additional controller board along with the second drive mechanism. This DB-25 port is connected to Supra's host adapter interface board and does not share the existing disk controller. The primary uses of this outlet are to connect another complete drive system, or to provide a SCSI pass through connection.

Since most Supras and ICDs use an RLL mechanism and controller, the quickest and least expensive route is to add another RLL drive by chaining directly off the controller board. This requires a 34-pin ribbon cable crimped with three connectors—one for the controller's edge card, one for the existing drive, and one for the new drive. Another 20-pin ribbon cable is also required to complete connections. In most cases, additional drives and controllers can be chained in the same manner provided the connections and interfaces (ST506/412 or SCSI) are the same.

When adding a second drive, a larger case (\$18–\$30) and an additional power supply are needed. Depending on drive height and disk diameter, drive mechanisms consume between 11 and 25 watts. Cases that can accommodate multiple drives, usually two full heights or four half heights, can be purchased with 150 watt power supplies for around \$70–\$85. With a larger case, the existing mechanism can also be traded out for a higher capacity drive and you won't be limited by physical size. However, the price you may get for your existing mechanism might be an inducement to keep it. When adding drives, check with your



present drive's supplier to insure compatibility, not only with the existing drive but also with their software.

By assembling your second drive you avoid the costs of an additional controller and host adapter along with labor for assembly and testing as well as marketing costs associated with a complete drive system. Savings can range from 40 to 50 percent. Thumb through *Computer Shopper*, attend computer shows, and weigh the price advantages against the potential reliability of your local dealer to make the decision on where to buy.

## Assembling Your Own

For those who would like to consider rolling their own drive systems with one or more drives, you will need:

1. Drive mechanism(s)
2. Controller board to match the drive
3. Host adapter interface board (controller's SCSI to ST host DMA port)
4. Mounting brackets and hardware
5. Power supply for drives, boards, and fan
6. Fan
7. Connecting cables
8. Case
9. Hard disk software

### Hard Drive Mechanisms.

Although there are over a dozen manufacturers of hard disk drive mechanisms such as Control Data (CDC), MicroScience, MiniScribe, Priam, Rodime, Seagate, Shugart, and Tandon, many of those used in finished IBM PC and ST drive systems are from either Seagate or MiniScribe. The latter manufactures about 3000 drive mechanisms a day and markets to sell at the same rate. Both MiniScribe and Seagate address the mass PC market, both produce good quality, but their

drives won't last forever. Higher performance drives with greater durability are big bucks—in the thousands; so be content with either of these drive mechanisms because they will give you productive use.

Mail order may not be convenient because of potential delays in handling exchange of defective drives. On the other hand, some local dealers may not exchange but prefer to send defective drives to the supplier for repair or replacement. Many mail order houses are so busy taking orders that they cannot provide advice and guidance. Although local dealers can usually support products sold, prices may range from 15 to 40 percent more than mail order. Table 1 gives a mail order yardstick for comparative shopping.

**Controller Boards.** Adaptec or OMTI controller boards are widely used and range in price from \$90 to \$150 depending on source. The Adaptec 4000A is for MFM drives and the 4070 for RLL. The OMTI 3527, used by Supra, is an RLL controller. ICD uses Adaptec. Both Adaptec and OMTI have better interleaving ratios and provide faster data transfer than the frequently advertised Western Digital controllers. The Western Digital will not work with the Magic Sac or Spectre 128. Supra and ICD provide the best supporting software and utilities; so check with either of these suppliers to insure compatibility between the controller and software. Both sell kits that include everything but the drive itself (more later). A word of caution. Inherent in Supra's electronics is a limitation on length of the cable connecting their interface board to the ST's DMA port – about 24".

**Host Adapter Interface Boards.** Either Supra or ICD are excellent choices for host adapter interfaces and supporting hard disk software. Prices range from \$100 to \$136. ICD's electronics allow a longer cable between the drive and ST—a necessity for some users. Both companies are very helpful, but voice lines for technical support are usually busy. Drop in on GENie or Compuserve to sample the technical support provided by both on ST bulletin boards.

### Power Supplies and Cases.

As noted earlier, PC power supplies and their prices are reasonable and they can be purchased separately as 150W (\$39) or 200W (\$49) units, or they can be purchased with a PC XT or AT case (\$90 – \$120). A 150W supply is overkill, but often the smaller 40 or 65 Watt supplies are not as well packaged with all the necessary electrical connectors. By all means don't underpower. A drive can pull 3 to 4 times its operating amperage on startup. When making electrical connections to the drive and boards, double check before powering up to insure with certainty that they are correct. Applying 12V DC to a 5V device is guaranteed to destroy ICs.

There is ample room in these XT and AT cases; so if you are a PC ditto user with a 5.25" floppy drive, this can be mounted in the case along with two or more hard disk drives and a power supply. If

**Table 1: HD Mail Order Prices**

#### MiniScribe

44MB RLL	MS-3053	25ms	HHx5 AP	\$409
62MB RLL	MS-3675	61ms	HHx5	\$289
71MB RLL	MS-6085	28ms	FHx5 AP	\$549
110MBRLL	MS-6128	28ms	FHx5 AP	\$599

#### Seagate

49MB RLL	ST-157R	28ms	HHx3	\$389
65MB RLL	ST-277R	40ms	HHx5	\$379
80MB MFM	ST-4096	28ms	FHx5	\$565
122MBRLL	ST-4144R	28ms	FHx5	\$650

the PC case is too obtrusive for your taste, use the ICD adapter interface with a longer DMA cable or, alternatively, mount the interface board in a separate small box. The adapter board and box can be placed closer to the ST, and the hard drive case further away or under the desk. There is less limitation on length of the cable connecting the controller to the host adapter interface—4 to 6 feet should work fine. This ribbon cable is the largest in the system—50 wires—and power must also be supplied to the adapter board. If you assemble your own components, you will soon discover that costs for the right mounting hardware, the right size screws and other needed accessories quickly accumulate in typical nickel-and-dime fashion.

**Cables.** Prices vary widely for ready made ribbon cables—from \$4 to \$10 for identical items. Recall that you will need 20 and 34-wire ribbon cables with edge card connectors on one end and box pin type plugs on the other. As mentioned previously, you will also need a 50-wire ribbon cable between the drive controller and host adapter interface boards. Ready made with connectors, this cable can list for as high as \$20. The DB-19 mini plug cable that connects the adapter interface to the ST DMA port is furnished with the board.

**The Results.** Once you pull everything together, chances are that nothing works. Although the Supra, ICD, Adaptec, and OMTI manuals are helpful, Murphy's law prevails here. Power supplies are relatively easy to check out with a DC Volt meter. However, pinpointing problems between the drive, controller, adapter, four to five cables and connections, the software, and last but not least—the operator/assembler—can be much more difficult. Hopefully, the controller and interface boards were

not damaged by wrong electrical connections.

## For The Faint At Heart

If all of these requirements seem overwhelming, there is a reasonable alternative—the kit!

The ICD FA-ST kit contains everything you need except the drive mechanism itself. Included is the case, fan, 40 or 65 Watt power supply, host adapter interface board, Adaptec controller board, mounting hardware, cables, ICD software, and both Adaptec and ICD manuals. The case will hold two 3.5" or one 5.25" drive. The MFM Kit is \$450, RLL \$500, and SCSI (for drives with integrated controllers such as the Seagate ST-...N series) \$370.

Toad Computers offers a kit with controller and host adapter interface. Prices are \$215 for MFM and \$255 for RLL. A case with power supply is an additional \$129. Tech Specialties offers a variety of kits, drives, boards, and custom cases. Choices range from a single component to a complete kit including drives. All components are tested prior to shipment—a significant factor to consider. If purchased separately, as many as five different suppliers may be involved in testing and exchange. In some respects there is more variety available from Tech Specialties than from others and the prices are competitive. Unfortunately, it can take a long time for Tech Specialties to deliver orders. Although this is a source with many offerings, your patience will be taxed. Kay Vaumund, President of Tec Specialties, is very helpful with technical support for everything that was "invented here."

With careful shopping and price comparison, a complete 65MB RLL system can be assembled for between \$765 and \$875 compared to a list of \$1145 – \$1350 for the same capacity off-

the-shelf system. The 65MB Seagate ST-277R and the 62MB Mini-Scribe MS-3675 are probably among the best buys per MB price. And don't feel reluctant about these capacities. I can well remember when just a few years ago someone exclaimed, "Who will ever need more than 64K bytes of RAM!" If you choose to plug-in and run, Table 2 provides a guide to list prices for complete drive systems (prices may vary because of recent supplier changes).

**Table 2: List Prices for Complete Drive Systems.**

<b>Astra HD+</b>	
(Includes 3.5" DS floppy drive)	
20 MB .....	\$895.
30 MB .....	\$995.
50 MB .....	\$1100.
<b>Astra Expander</b>	
(Optional 3.5" DS floppy drive)	
20 MB .....	\$1100.
30 MB .....	\$1200.
40 MB .....	\$1300.
60 MB (Dual 30Mb) .	\$1350.
100 MB (Dual 50Mb)	\$1700.
<b>Atari</b>	
20 MB (SH-204) .....	\$700.
20 MB (Megafile) .....	\$795.
<b>Brainstorm</b>	
(Includes either 3.5" or 5.25" DS floppy drive)	
20 MB .....	\$700.
30 MB .....	\$845.
40 MB .....	\$995.
60 MB .....	\$1145.
<b>ICD FA-ST</b>	
20 MB .....	\$700.
30 MB .....	\$950.
40 MB (Dual 20Mb) .	\$1150.
50 MB .....	\$1100.
60 MB (Dual 30Mb) .	\$1350.
100 MB (Dual 50Mb)	\$1700.
<b>Supra</b>	
20 MB .....	\$700.
30 MB .....	\$795.
45 MB .....	\$995.
60 MB .....	\$1145.

## For Further Pursuit

There are some excellent articles in the December 1988 issue of STart magazine: a hands-on assembly review of the ICD FA-ST Hard Drive Kit by Steve Mortimer; "Hard Disk Roundup" by Dave Plotkin; and the first of a series by Dave Small, "Hard Disk Lore and First Aid". The two better books on the subject are Chris Bosshardt's *Hard Disk Smarts*, and *The Hard Disk Companion* by Peter Norton and Robert Jourdain. Although both are primarily for the IBM PC, they are among the very few popular books that cover the hard technical side of these drives. The GENie ST Bulletin Boards are also rich with experience and guidance. Drop in on Page 475, Category 3, Topic 5, and Category 4, Topics 10, 23, 30, 51, 53, 59, and 82. For Magic Sac and Spectre users, visit Page 690, Category 7, Topic 10. And enjoy your new hard disk capabilities!



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<b>CASIO MT 240 w/ FREE MIDI CABLES &amp; ADAPTER</b>	49 mini	\$189	\$209
<b>CASIO HZ 600 w/ FREE MIDI CABLES &amp; CARTRIDGE</b>	61 full	\$349	\$379
<b>CASIO CZ 1 TOUCH SENSITIVE 3 FREE CARTRIDGES</b>	61 full	\$699	\$749
<b>CASIO PMP 500 w/sound eff. recorder 465 snds</b>	61 full	\$379	\$439
<b>CASIO FZ 1 DEMO-W/25 DISKS &amp; 1 MEG MEMORY</b>		<i>better hurry 1 only</i>	\$1695

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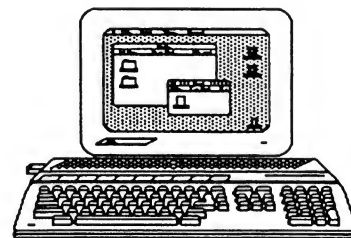
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# ALTERNATE REALITY – The City

An In-depth Look At This Masterwork of Graphics, Music, and Fantasy  
for the Atari XL/XE

The *Alternate Reality* series is by far the most popular set of adventures ever written for the Atari 8-bits. If you haven't yet discovered why, you're in for a real treat when you do. The City is an absolute masterwork of graphics, music, and fantasy.

I've long been an ardent fan of adventure games—especially of good graphic adventures. It wasn't until one night back in the summer of 1986, when I decided to try out my new modem on Compuserve's Atari section, that I found at least 100 messages pertaining to *Alternate Reality* (AR). Upon reading them, I deduced that AR: The City must be a truly provocative and fascinating game.

The documentation is quite adequate and straightforward, though after playing the game for awhile, some may find it a bit thin on details. This is a common complaint regarding documentation for better adventure games, and often the omissions are intentional to preserve some of the mysteries and secrets of the games.

If you have two disk drives, once you've entered The City, you can play uninterrupted by disk swapping (until you wish to save your character). The game plays significantly faster on an XL/XE (less disk access: it uses an extra 16K as a small ramdisk) than on an 800/400(48K).

Your most important tool is the map provided in the Guidebook. The City is positively immense! It is laid out in a 64 X 64 square grid. Within each square are 36 positions (6 X 6: it takes 6 steps to cross a square in whichever direc-

**by Lauren Royce Emery**

tion). Within each position you may assume any of four orientations (north, south, east, or west). In most locations you can tell which direction you're facing by the difference in the shapes of the mountains and scenery off in the distance. For those other locations where the horizon is not visible, a compass is available for purchase at any of the shops in The City to help you regain your bearings.

The map only shows you the City Wall (city limits), the two Main Streets (one runs north and south, the other runs east and west), and the center of The City, where the two Main Streets intersect at the Floating Gate. You have to travel to the unmapped areas and draw in the walls yourself, based upon what you see in front of you. The square-to-square boundaries are not as clear as they should be, but they are visible if you look carefully at the walls. A few of the openings and doorways are shown on your map, but many are invisible, or only visible from one side, or passable only in one direction.

It's advisable that you make many copies of the original map, and either work in pencil or keep plenty of white-out handy—as you're bound to make mistakes as you begin filling in the uncharted regions. Once you've run around the streets for a few days, you get to know The City just as you would get to know any other unfamiliar town you'd explore here on Earth. Most people I know who've been playing for a short while just stroll

easily about the familiar parts of The City without the map. You get to know what's near the center of town: a place to eat, a place to sleep, a couple of places to buy clothes, a place to buy weapons, and a place to earn interest on your money.

In AR: The City, you, the adventurer, have undergone abduction by aliens who then take you to a strange, walled city on another planet. This is impressively depicted—and accompanied by some of the most technically advanced music ever to come out of any 8-bit computer—in the game's introduction, which lasts for about five minutes (and can be bypassed by pressing START anytime after about 5 seconds into the loading). Somehow, through the use of his "Advanced Music Processor," Philip Price has found a method of having more than four voices sound simultaneously. Those of you who are familiar with music theory and harmony, listen closely, and count the voices. (I've counted at least six concurrent voices in a few of the AR City songs). Try playing this game on a stereo-equipped TV or through a stereo VCR with a good set of headphones instead of your normal dinky "lo-fi" TV speaker. The sound effects produced by your Atari will blow you away! The music in The Dungeon sequel—though very nice—doesn't even come close, technically. The intro rivals many movie intros I've seen.

When you regain consciousness, you're in a room with a large portal with an energy field glistening across its opening. Above the door is a display panel of seven



constantly-changing numbers, each representing a critical attribute of your character. To the lower right is another changing number representing the amount of money you'll be starting with. Each of these numbers changes at a different rate. You may be there for quite awhile waiting for what you hope will be the best combination of vital statistics for your character. You can't possibly follow all of these numbers changing at the same time, so it's a good idea to pick two or three of what you consider to be the more important attributes and wait for them to simultaneously display higher numbers. The instant you've decided that your best choice of numbers has rolled up on the panel, you lunge forth with abandon through the shimmering energy field (that is, you push ahead on the stick or hit any key), and your numbers freeze and you will soon be taking your first steps in "The City of Xebec's Demise."

Note 1: When you're entering The City for the first time, it's a good idea to use a "Temporary Character" (option "T" on the "Character Decision Menu"). This allows you to quickly enter and roam around to get used to your surroundings. You don't have to worry too much about waiting for the perfect set of stats to come up, as you're most likely going to die soon anyway. A temporary character can not, of course, be saved.

Note 2: When you feel that you're ready to try a character that can be saved, and you're not satisfied with the combination of numbers you've begun with, you should reboot the game—without letting the rest of The City load—and try running the entrance portal again. I wish the programmer had provided us with a routine for "quitting" the game and re-entering The City without having to

reboot. The initial boot (to get to the Character Decision Menu and the Entrance Portal) takes about 40 seconds if you bypass the full introduction. But the loading of the rest of The City takes an average of about 3.5 minutes with disk swaps. AR The Dungeon, the first sequel to The City, has such a routine, and it's quite a convenience.

Note 3: Once you're satisfied with your initial character, let The City finish loading and save the character to disk immediately upon reaching the Floating Gate. Make a few copies of that saved-game disk, because if you don't, if (when!) you die, those stats you worked so long and hard to obtain will be gone forever! (That is, unless you happen to have a neat little public domain utility which I'll tell you more about later.)

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Try playing this  
game on a  
stereo-equipped TV  
... the sound effects  
will blow you away!

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Once you've passed through the ship's portal, you'll find yourself at The City's center section facing north, with the Floating Gate directly ahead of you. In the text display toward the lower end of the screen, you'll notice a rough indication of your location ("You are on a street," "...on an alley," "...in a room," etc.) and how much food and water you're carrying. If you back up or turn around to face the direction from which you came, don't even think about backing through that door. The ship has left you—and there's no turning back!

As you look around, you'll see the difference in the scenery, and you'll hear (and almost feel) the wind howling softly around you as

it flows briskly against the light gray stone walls of the center of town. The actual graphics section of the screen is just a small central portion of the display (just roughly 2.7" X 4.9" on a 13" television), but, due to the great detail of the graphics, there's no trouble seeing what's going on from the player's standpoint (and from a programmer's point of view, a larger graphics area of such meticulous detail would eat up much of the RAM reserved for the rest of the game).

As time goes by, you'll get to see your first sunset (yes, the sun does rise in the east in the morning, and it sets in the west at dusk—it's quite beautifully done). Sometimes the air is perfectly still; then all of a sudden a pouring rain begins—often complete with lightning and thunder (very realistic! — I've left the game in "pause" during a "storm" more than once, and members of my family had to do a double-take out the windows to see if it was wet outside).

As you pass close to a couple of areas (hint: areas which pertain to sequels) during certain times of the day, you can hear the distant music and/or activity coming from the other side of the walls which is meant to clue you as to where you are. There are so many nice details of this sort written into this game, but I'll leave a great majority of them for you to discover.

As you explore your new home-town, you'll eventually run out of food and get hungry, or get tired of walking around all day and night. For these conditions, there are Taverns and Inns at various locations throughout The City. Some are hidden quite well. In general (but not always!), the farther from the center of town, the lower the prices are.

In the Taverns, you'll hear much more of the incredibly intricate music of composer Gary Gil-



bertson, accompanied by lyrics which often are helpful not only in The City, but are best remembered for later sequels as well.

If you don't (or can't afford to) eat or sleep, you'll get progressively more hungry and/or tired, and your stats will diminish with gradually increasing rapidity. As soon as you get enough to eat and/or get enough sleep, you'll regain your previous stat levels. Inns are also the only place where you can find out the date and the time of day. You can even get terribly drunk in this game from consuming too many alcoholic beverages in the tavern, or by taking a "Potion of Inebriation." The on-screen effect is quite realistic: you stumble against walls, spin around in different directions; you even have blackouts. While this might seem funny to some, it can also be suicidal if you're trying to defend yourself during an encounter. You must either find an Inn and sleep it off, find and take a "Potion of Cleanse," or pay one of the Healers to cure you.

There are many different life-forms traversing The City, and there are times when you encounter them quite often. There are "good" entities and "evil" ones. These can be easily distinguished by the short tune which plays just prior to their appearance. While good beings may be met at any time, there are certain evil creatures which can only be encountered in the dark of night or during a rainstorm. You may choose to have your own character be either good or evil by the manner in which you interact with others. You may find treasure after encounters in the form of precious stones, magic potions, weapons, armor, or money. The jewels and gems you find may be taken to any of the three banks in The City and cashed in (prices vary from day to day and bank to bank).

The potions may be anywhere from extremely beneficial to extremely detrimental for your character. Though these should be taken with caution, too much delay may cause the potion to vanish. The game doesn't tell you exactly what potion is in the vial until you've taken enough of it. If you're unlucky enough to take a potion of Poison, you, in a desperate race with time, must either find and take a potion of Antidote or find one of the two Healers in The City (they're not always home, either!).

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As your character  
hungers and thirsts,  
you feel hungry,  
and your mouth  
begins to feel dry.

---

There is a wide variety of weapons and armor to be found after an encounter or purchased from a Smithy (mostly Medieval types, which seems a bit anachronistic) which may be either mundane, magical, or cursed. You can always tell when you're near a Smithy when you hear him busily hammering away on his anvil. Different types of weapons and armor vary greatly in strength, and some creatures can only be defeated by certain special types of weapons which are rarely found and only possessed by the luckiest adventurers. You may take any of your City possessions with you "downstairs" into The Dungeon sequel (with the exception that you're limited to taking only sixteen potions).

There are twelve accessible Guilds in The City. Although you can't join any of the Guilds in this episode (not until you reach The Dungeon), each one you find rewards you with increases in your

character stats. The Wizards and Mages of the Guilds are the only ones who have the power to rid you of any cursed weapons.

Just a few Complaints:

(1) During an encounter, when your adversary steals something from you and then you kill him (it), you rarely get back what was taken (after a kill in The Dungeon, all that was taken is available for you to pick up, even the corpse of your fallen foe).

(2) Once as a neophyte in The City, I was dying of thirst. A pouring rain began. I thought my prayers had been answered, but not so. For some odd reason (oversight?) the game doesn't allow you to drink rain (who knows... maybe it's not water???).

(3) I don't think all of the "security" during character name input at the beginning of the game was necessary, but it's tolerable.

(4) There are just a few minor misspellings of some rather elementary words, which tend to grate on the nerves of some of us perfectionist-types.

(5) The most deadly flaw in the game is the existence of the dreaded so-called "kill-squares." These are two locations which are only one square in area, each having a one-way secret (invisible) door to the inside, and no way out. There's nothing to do in there but hopelessly bash yourself against the walls, wishing that a door would appear (it won't) and fight off any other hapless victims who are also so unlucky to have stumbled in there with you--until you starve and die. For those of you with maps, the locations of the kill squares are at coordinates 4N,41E and 6N,47E (don't forget to begin counting with ZERO). Mark them in on your map and avoid these locations at all cost! If you do happen to end up in either one, don't even stop to lament; just shut the machine off and reboot.

(6) I wish that the documentation went into more detail concerning the relative "ranking" of the many types of weapons and armor—or even just a simple listing. It took a group of us (Compuserve users) a few months and a couple of phone calls and letters to Philip Price (the author) himself (his address can be found by booting disk 1 side 2) to determine this fairly accurately. One of the undocumented goals of the game is to become the possessor of the most powerful offensive weapon (the Magical Flamesword), the best defensive weapon (the Magical Tower Shield), and the best armor (Magical Crystal Plate). Only once in over two years of playing have I had one character obtain all of these items. Many others I know were much more lucky than I, but there are also many more who've never seen ANY of those weapons, and they think that Mr. Price forgot to include them on their disks. Believe me, they're there, but your chances of finding them are completely governed by lady luck.

Players who have modems have a tremendous advantage over those who don't. The single greatest source of information in the world on *Alternate Reality* is Compuserve's 8-bit Atari SIG (Special Interest Group), command: "Go Atari8." On no other on-line service have I seen anywhere close to such a level of AR enthusiasm. Though most of the current talk concerns The Dungeon, most of us are quite familiar with The City and all of its secrets. There are loads of informational and utility files in the "Games & Entertainment" data library, and all can be found by using the search key "ALTER-NATE." One lists each of the potions and their characteristics; another (uploaded by yours truly) lists all of the beings who exist in The City, what weapons they carry, and their moral alignment (good or

evil). There is at least one set of files which contains a complete map of The City which either can be printed out or viewed in sections in RLE format right on your TV (software for viewing RLE pictures is also in the public domain and is available free from most on-line services). There is a utility for resurrecting dead City characters. A very large set of files (also compiled and uploaded by me) containing all of the most pertinent AR City-related messages over the space of about a year (when the AR City talk was at its height back in 1986-1987) would be extremely helpful to the AR novice. That set is literally chock-full of helpful hints.

Before I close, I must divulge just one undocumented City secret. There are actually two extra Guilds, both of which are located in a normally inaccessible area. There is another public domain utility available which creates a new door (which the programmers seem to have accidentally omitted) which gives you access to a place none of us could get to before. The original Guidebook stated clearly that there were fourteen Guilds, but when it was realized that the door wasn't there, a decision was made to change the Guidebook instead of the program.

A Gentle Warning: AR: The City and The Dungeon can become incredibly captivating and consuming. Often, players have said that they don't feel as if they're playing The City, they're living it. As your character hungers and thirsts, you feel hungry, and your mouth begins to feel dry. As your character tires, you feel your eyelids become heavy. There's something special about the first-person 3-D perspective used which clearly distinguishes the feel of this game from those such as the ULTIMAS or some of the SSI

role-playing graphic adventures, which all employ the second-person view (you see yourself).

Even with all its shortcomings, *Alternate Reality* – The City is a spectacular introduction and preparation for *Alternate Reality* – The Dungeon and the sequels (AR – The Arena, The Palace, The Wilderness, Revelation, and Destiny) that will hopefully follow!

[Datasoft/IntelliCreations, Inc., 19808 Nordhoff Place, Chatsworth, CA 91311, (818) 886-5922. List Price: \$29.95.]

(My name is Lauren Emery. Many of those closest to me call me Larry. I invite anyone with AR questions to either catch me on Compuserve [ID: 73137,3172] or to write me: Lauren Royce Emery, 6617 Lincoln Drive, Philadelphia, PA 19119.

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**by Jeff Greenblatt**

## "YGWYPF"

Over the past year or so, several CADD packages for the ST have been reviewed. Most of these CADD packages, according to the reviewers, missed their mark by a wide margin for various reasons. There is an old adage that's definitely applicable here—**You Get What You Pay For**. You can't expect to get the features and power of AUTOCAD using "Power Without The Price" philosophy. The development costs, to produce a truly professional CADD package, are tremendous. Clearly, given the relatively small installed user base of the ST, as compared to the Mac or IBM, the price to the end user must be high if the developer is to make a profit and to continue to provide product support. *DynaCADD*, distributed by ISD Marketing, Inc. of Ontario, Canada is no exception at a retail price of \$695.

*DynaCADD* consists of three double-sided disks, a cartridge (for protection) and a loose-leaf reference manual with over 300 pages in it. Disk 1 contains the program itself; Disk 2 contains Parts and Utilities (including fonts); and Disk 3 contains documentation for on-line help. There are actually four disks, but the fourth disk, which is supposed to contain the Font Editor, was not ready for distribution at the time of this review. *DynaCADD* requires a

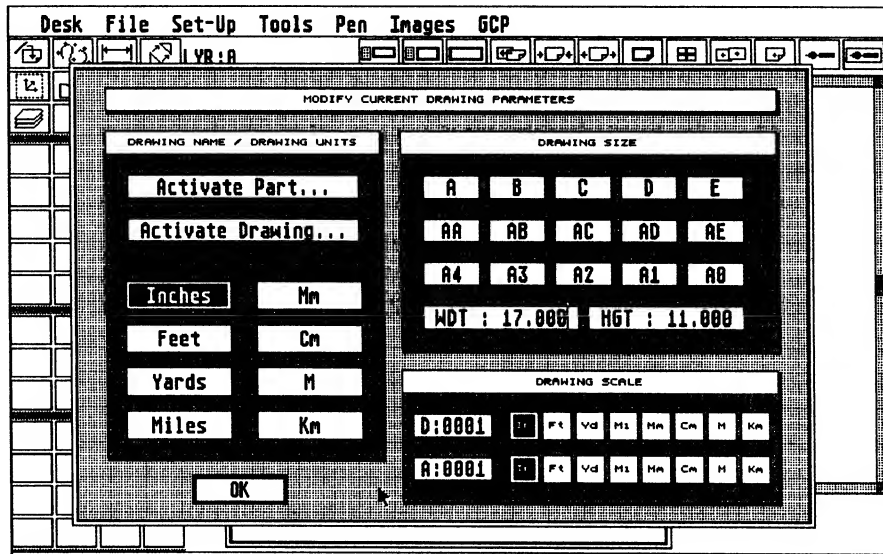


Figure 1: Initial set-up screen.

monochrome monitor and at least one meg of RAM. Although it can be used with a double-sided drive, a hard disk is recommended.

## Two Levels

*DynaCADD* has two levels of operation—the SYSTEM level, and the CADD level. The CADD level is the primary use level. This is where drawings are actually created, modified and eventually sent to various output devices—saved as files, or sent to a printer or a plotter.

The SYSTEM level is the initial screen the user finds when *DynaCADD* is first run (Figure 1). This is where the initial set-up occurs for such parameters as scale, units of measurement and page size. Drawing sizes can be selected from eight predefined English and metric types or manually entered

for custom sizes in combination with the Drawing Units boxes. Drawing Scale can be manually set to just about any reasonable scale the user wants using buttons D (Drawing Size) and A (Actual Size), each of which have eight units buttons to set the drawing scale relationship.

In order to proceed to the CADD level, the user must, at a minimum, activate a "PART" and a "DRAWING." There is no way to exit *DynaCADD* from this screen in case you change your mind. If you click on the "OK" button without activating a "PART" and a "DRAWING," a dialog box appears instructing you to select them. A "CANCEL" button should be added for convenience.

A "PART" is defined as a 3-D database which consists of the actual object(s), held within the computer's memory, which are on the drawing. A "DRAWING" is the

actual page or sheet of paper on which the "PART" is placed. A DRAWING can be modified in size as well as scale. In each case, when a PART or DRAWING button is activated, a file selector dialog box appears. This is where a new PART and DRAWING is created or existing ones are retrieved before entering the CADD level. By having PARTs and DRAWINGs separate, existing PARTs can be placed on different DRAWINGs using different sheet sizes and scales.

Since the Parts and Utilities disk contained some PARTs and DRAWINGs, I decided to load in a PART and DRAWING labeled Tallship. When I did this, the screen cleared to the CADD level and the "busy-bee" appeared on the screen. At first I thought the program had locked-up because after about a minute, I still had the "busy-bee." After a little more than two minutes, the image of a Tallship began to form rather quickly on the screen (figure 2). Apparently, the computer was forming the image internally before drawing it to the screen. As I later found out when I sent the drawing to the Laser, it took that long to form the image because it con-

tained 1,402 entities.

An entity may be a point, line, circle, arc, fillet, ellipse, elliptical arc, or text. Using these basic elements, complex PARTs and DRAWINGs can be created, modified and manipulated in both 2-D and 3-D modes.

Whether you are in the 2-D or 3-D mode, entities may be located by Absolute Cartesian Coordinates, Relative Cartesian Coordinates, or Polar Coordinates. Entities are always inserted into the drawing and its current coordinates are indicated in the upper left hand corner of the screen. As each command and coordinate is entered, it is recorded on the bottom portion of the screen which the manual calls the Command Line Interpreter. If needed, an entire session can be recorded for later playback. Another option available is to echo all commands to a printer. This is most helpful in retracing steps in the creation of drawings.

*DynaCADD*, in the 3-D mode, has the ability to provide up to four views of an object at any one time. Seven predefined views (TOP, FRONT, RIGHT, BOTTOM, REAR, LEFT, and ISO) are available with

the option of creating as many as nine more custom skewed views along the X,Y and Z axes. This is where *DynaCADD* really shines. A 3-D object can be created and by opening separate windows, a selected "orthographic view" of it is automatically created in each window. If any part of the object is modified, all the other views are instantly updated.

As far as drawing layers is concerned, *DynaCADD* provides up to 256 layers per DRAWING. It also gives the user the ability to turn on any combination of layers at any one time. The ability to use up to 256 layers or combinations thereof should satisfy anyone's requirements.

Before I continue to describe the major features of the CADD level, I should point out that *DynaCADD* has over **300 commands** available at this level. Since I have barely touched upon its features, I'll try to skim over most of them and dwell upon the most important attributes or weaknesses.

*DynaCADD* provides a user an interface broken into several distinct parts to communicate with it.

## Command Entry

Due to the large number of commands available via the mouse, a tree structure is used consisting of four menu pads on the left side of the screen (figure 3). Depending on which first level ICON command is implemented, succeeding level commands are then displayed. Almost every command is available through the use of the mouse, including entering numerical values.

## Command Interpreter

As an alternate to using the mouse, *DynaCADD* allows the use of the keyboard for command entry. After typing in the command

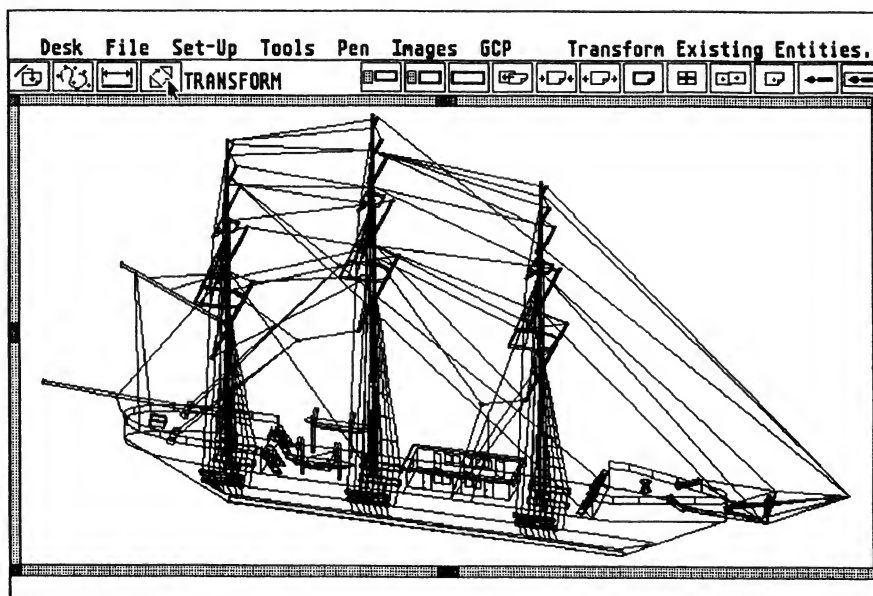


Figure 2: Tallship drawing supplied with DynaCADD.



name and pressing the spacebar, *DynaCADD* will select the appropriate ICON on the menu pad and perform the command. In most cases, full command names are not required. All commands, whether by mouse or keyboard, are displayed on the bottom of the screen under the drawing area.

## Drawing Area

The drawing area is obviously where all drawing takes place. It's bounded by eight move buttons placed around its perimeter (figure 3). Using these eight move buttons, the user has the ability to adjust the size of the drawing area or move it at will. *DynaCADD* also provides three quick resize buttons which are represented by the ICONs above the drawing area and below the PEN and IMAGES' drop-down menus.

## On-Line Help

One of the most unique features of *DynaCADD* is its on-line help. As previously mentioned, there are over 300 ICON commands, and it will take some time and patience to learn what they are and how to use them. To overcome this problem, *DynaCADD* optionally displays the command name and a short help message every time the mouse pointer passes over a command ICON. The command name is displayed above the upper left corner of the drawing area; the short help message is displayed in the upper right corner of the screen (figure 3). The command name displayed is the name which can be alternatively typed in from the keyboard in lieu of using the mouse. If the short help message isn't enough, pressing the HELP key will bring up full on-line documentation. The on-line documentation typically consists of a brief description of

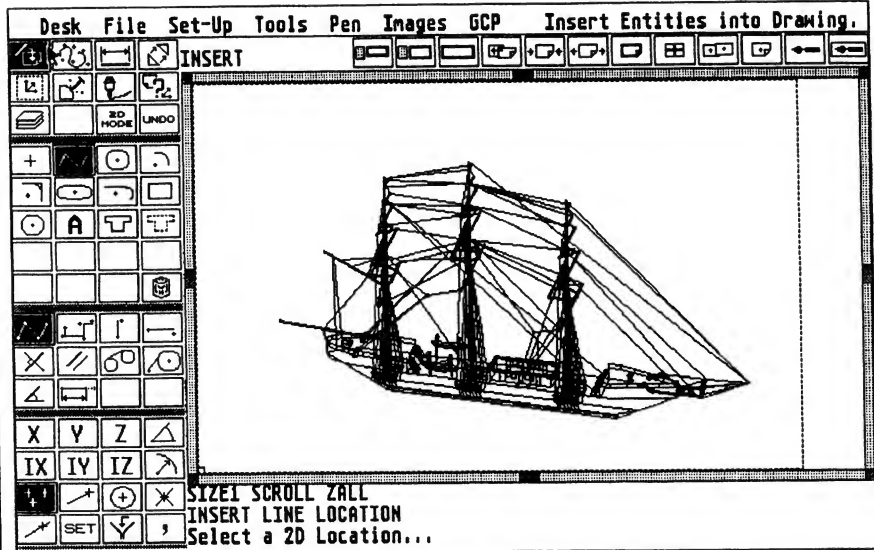


Figure 3: Main drawing area with menu pads on the left.

the command, how to use it, and the format of its use. This is by far one of the most convenient features of *DynaCADD* which, in most instances, eliminates constant reference back to the Manual for help. As a matter of fact, sometimes the on-line documentation offers a better explanation than the Manual. More on this later.

## Drop-Down Menus

As with all GEM based software, *DynaCADD* provides drop-down menus in addition to the ICON menu pads. The drop-down menus are used to access global commands and utilities that are available at all times. This is where such items as file selection, drawing tools, pen types, images and custom GCP (custom views) can be selected or created. I won't go on to describe all the features available in the drop-down menus, except for a few of the important ones.

The File drop-down menu has some unique features. A utility called *RESERVE.PR*G informs *DynaCADD* how much memory you want to reserve to run a secondary program while using *DynaCADD*. Then when in *Dyna-*

*CADD*, by selecting the Suspend function in the File drop-down menu, another program can be executed. Due to the amount of memory required by *DynaCADD* itself, a MEGA ST or equivalent will be required to utilize this feature. Once you exit the secondary program, you can return to *DynaCADD* and resume where you left off. This could be quite handy for creating a special font character from within *DynaCADD*, when the Font Editor Disk becomes available.

The File drop-down menu also provides a File Transfer function to import and export files in DXF and DEF transfer formats. This gives *DynaCADD* the ability to transfer drawings with such programs as AUTOCAD (DXF) and *Calamus* (DEF).

The Set-Up drop-down menu contains Drawing, Dimensions, and Tool Values. The Drawing function will bring you back to the SYSTEM level discussed earlier. This is a really nice feature in that it lets you redefine the initial drawing parameters if you want to edit them. For example, if you find that the object on the drawing is too large, you can modify the scale to make it fit better on the sheet.



The Dimensions function brings up a dialog box (figure 4) where all the parameters for defining automatic dimensioning, in both 2-D and 3-D modes, are set. The options offered are just great. It even has an architectural setting which will cause all dimension text to be separated into feet, inches, and fractions of an inch to the nearest 1/64 of an inch.

however, two of them are worth further mention.

Grid is a very nice drawing aid which can be defined using the Set-Up drop-down menu. However, one problem I found with it is that when it's toggled ON, "snap to grid" is turned on with it. There is no way to turn the grid on without "snap to grid." The program should provide such an

matter) would be a drawing ruler on the top and side of the drawing area. This would be most useful to an architect for large scale details and sections.

The Pen drop-down menu is where the current pen and style are selected. Eight pen numbers with six pen styles are available in this menu. Pen numbers are only valid if you are using a pen plotter. The 6 different styles offered (solid, dashed, dotted, dot-dashed, etc.) will be sufficient for most users. All entities except points and text are drawn in the pen style selected. No provision is made for custom pen styles to be created although once an entity is drawn, it can be edited at will.

One glaring omission is the ability to change pen thickness. Architects will miss this feature since most of their drawings use lines of varying sizes. The only way to obtain different line thicknesses, assuming you have a plotter, is to use a pen with a wider tip. If you are using a printer, all lines are printed in the same thickness. This feature must be added to *DynaCADD*.

The GCP drop-down menu is where the seven predefined views are available for selection with room for nine user defined views.

## Text Screen

The text screen is used to display the command key history of a current session. In addition, various information about the drawing is displayed on this screen. Pressing the TAB key will either bring it up or hide it.

## Value Calculator

This is another unique and pleasant to use feature of *DynaCADD*. Whenever *DynaCADD* requires a numeric value, a scientific calculator is displayed (figure

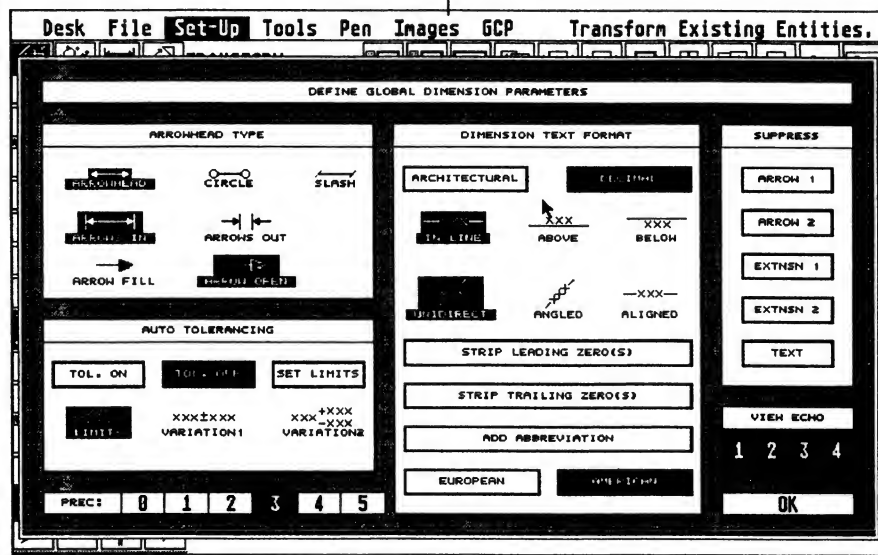


Figure 4: Dialog box for defining automatic dimensioning.

The Tool Values function brings up a dialog box for selecting Dynamic Tracking of the drawing tool, Grid Values and Grid Axis Values. The grid can be defined as just about any different value along the X and Y axes.

The Tools drop-down menu contains 14 various drawing aids and global editing parameters. These are Screen Color, Frame, GCP, Drawing Origin, Grid, Axis, Tracking, Help Messages, View Clipping, Rubber Band, Text Boxed, Printer Echo, Transform: COPY, and Inheritance. They are simply selected using the mouse, some of which have a toggle switch indicator (check mark) to show that they are active. Some of these features have already been discussed earlier,

option.

Transform: COPY is another nice feature of *DynaCADD*. Entities are transformed (modified) using just about any kind of modifier imaginable. Some of them include Rotate, Stretch, Divide, Delete, Trim, Translate, Mirror and others too numerous to mention. When Transform: COPY is toggled to on, any transformation commands will leave the original entities being acted upon untouched, and create a copy before applying the particular transformation dictated by the command. If it's turned off, they only act upon the original entities. There are countless possibilities using this feature, limited only by the user's imagination.

One nice addition to this menu (or the program for that

5). This is handy when you have a series of values that must be calculated before being entered. Using the Value Calculator, values can be calculated and entered simultaneously.

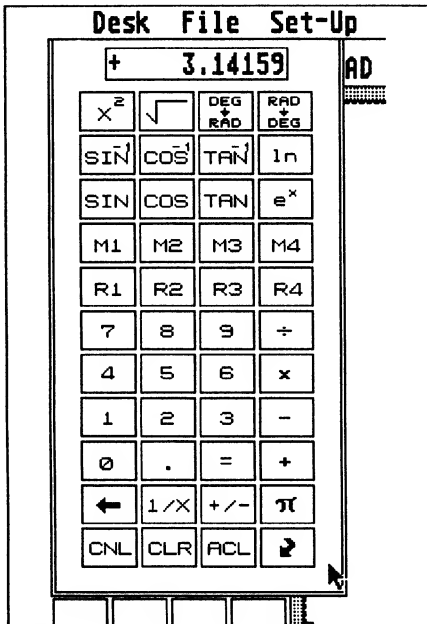


Figure 5: DynaCADD Scientific Calculator

## Mode Select

Both 2-D and 3-D modes, via a main menu pad ICON, can be toggled at any time during the design process. The only limitation is that the currently active command will be aborted when the current mode is toggled.

## Undo

The UNDO key or main menu pad ICON, will undo the last major command and will regenerate the drawing to its status before the last command was executed. Additionally, the currently active command will be aborted.

## Fonts

Another major feature of *DynaCADD* is its font capabilities. Up to 16 different fonts may be used in a drawing at any one time.

The fonts can be scaled, so they can be manipulated in height and width to just about any size conceivable. The text can be rotated or slanted, be left, center or right justified, or be proportional or non-proportional. You can even adjust the character spacing dynamically.

## Output

*DynaCADD* provides drivers to print or plot for almost every major dot matrix and laser printer, and pen plotter currently available on the market. In my experiences, printing out the Tallship drawing took the longest; about two minutes to send it to the SLM 804 Atari Laser because of its 1402 entities. The quality of the output was remarkable. My EPSON HI-80, four-pen plotter, is not currently supported by *DynaCADD*, so I can't comment on its plotting output.

## So What's Missing?

As I mentioned earlier, I have invested about 40 hours of my time in an analysis of *DynaCADD*. And frankly, it's not that easy to learn how to use it. Part of the problem may be that I'm well versed in the use of AUTOCAD, and *DynaCADD* behaves quite differently. The other problem is the Manual itself. It just doesn't go into enough detail; it does not fully explain how to use all of *DynaCADD*'s features and commands. More working examples are badly needed so that the novice doesn't stumble around trying to master the commands. The on-line documentation does help to a certain degree though. The 40 page sparse tutorial in the Manual on how to construct a 2-D bracket and a 3-D wedge shaped object barely scratches the surface of *DynaCADD*'s power.

The other problem with the Manual is that it was written for version 1.2 of *DynaCADD*. I was using version 1.4 which has added commands or revised commands which are not documented in the Manual. A README file on the program disk lists the revisions made to the program since version 1.2 and recommends using the on-line documentation to find out how to use them. This assumes you can find them first.

By now you may have concluded from my comments that I am an architect. Architects have a tendency to provide an artistic touch to everything they do....this includes how they illustrate buildings and their elements in plans, elevations, sections and details. Aside from the lack of ability to specify line thickness mentioned earlier, I found 2 other features missing from *DynaCADD*....from an architect's point of view that is.

The first is hatching. Architects (engineers too) visually illustrate differences in materials throughout their drawings, specifically in large scale sections and details. Brick, concrete block, insulation, steel and other materials are normally represented by different types of hatching in sections and details. The lack of hatching requires the user to create them manually by drawing them and copying them to create the hatch pattern...a real time consumer. This feature must be added along with the ability to create and save custom hatch patterns.

The other is Fill Patterns, including solid black. The lack of fill patterns hampers graphic creativity in the design process. Remember, one of the "D"s in CADD is for Design. Fill patterns are important for creating logos, signs, and visually illustrating all kinds of surfaces, and their separation from one another. A solid black fill pattern is very important for creat-

ing graphic scales and company logos.

There is one other thing that bothers me about *DynaCADD*. The cartridge. In my opinion, there is no need for a hardware key to prevent piracy. The copy protection is the Manual. Let's face it, if you don't have the Manual, as poor as it is, you can't effectively use the program. I also have an ST with a bad cartridge port, so I can't run *DynaCADD* at all on this machine. The cartridge appears to be in an old DeskCart case, so it's not very large. But if you are a Spectre 128 user like myself, swapping cartridges can be a real pain, especially when you forget to boot the ST up with the correct cartridge plugged in.

## Final Impression

I have spent a considerable amount of time using *DynaCADD* and I am quite amazed by all the features and power it offers. *DynaCADD* is not for every ST owner. It is specialized. But it is the kind of software a professional engineer or architect will definitely want. For the first time ever, *DynaCADD* makes the ST a very usable CADD system for the design professional.

*DynaCADD* may have the dubious distinction of being the most expensive software product available for the ST. However, if you consider that it offers most of the features and power of AUTOCAD for one quarter of the cost, it really is a bargain.

Believe it or not, this is still "Power Without The Price."

[*DynaCADD*, \$595, ISD Marketing Inc., 2651 John ST., Unit 3, Markham, Ontario, Canada L3R 2W5]

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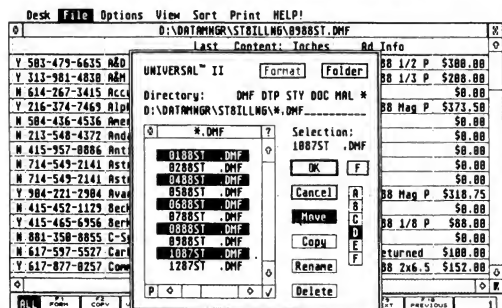
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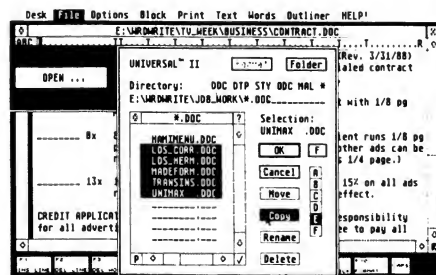
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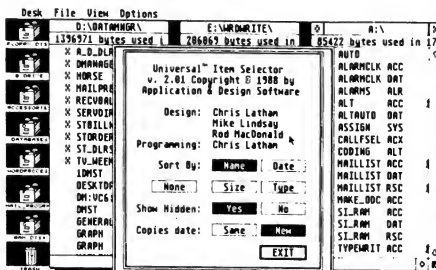
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**#301D: LDW POWER DEMO.** Demo of LDW spreadsheet includes auto macro to show off LDW features and folder of various VIP/LOTUS/LDW templates. DS disk.

**#302: LAMBERT PICS NO.6.** (C) 17 Degas Elite compressed pictures (3Dship, Bogart, F15, F18, Frtank, Gablec2, Goali, Hansolo, House, Kingkool, Kitty, Klingnon, Monument, Porsche, Spidey2, Strohs, Sun.

**#303: UNITERM, Ver 2.0E.** Latest version of UNITERM terminal emulator emulates the VT102/220 text terminal and Tektronix's 4014 graphics terminal. Includes Xmodem and KERMIT protocols. Files ARC'd. [Replaces CN #88]

**#304: ELECTRONIC JIGSAW PUZZLE VI.2.** (C) Great puzzle program from Gordon Moore for Neo, Degas, and Tiny pictures (color only). Includes 14 pictures (Bee, Bull, Comet,

Demon, Horses, Miamice, OldMovie, Parrot, Porsche, Portrait, Saturn, Stoneage, Trouble, Winter). Pics can be divided into 25, 64, or 100 pieces.

**#305 & 306: MODULA2 LANGUAGE.** This two-disk set contains a full working implementation of Modula2 language (note: Manual not included but can be obtained from author.)

**#307D: CALAMUS DEMO.** A demo version of newest desktop publishing program from Europe. Includes six sample documents (some ARC'd). IMb, DS disk.

**#308D: RUNAWAY CAT.** (C) Another AVS disk with a public domain player so you can see animation and hear music at the same time. (Note: This player also works with earlier AVS disks: CN #285, 286, 287.) IMb, DS disk, color.

**#309D, #310D, #311D: TEX: TEXT DOCUMENT PROCESSOR.** (M) Three disk set contains the TEX document processing language. Drivers provided for EPSON compatible 9-pin dot matrix printers only. Do type-setting at home! Requires monochrome. IMb, DS disk.

## New - December 1988

**#292: LAMBERT PICS NO. 5.** Spectrum: 2kittens, blackbird, chipmunk, fox, owl; Degas Elite: drag108, dragcol, dragcovl, dragon2.

**#293: DUNGEON MASTER MAPS.** Maps and a cut'n'paste spell chart to aid you in your quest in Dungeon Master.

**#294: KID GAMES NO. 3 (C).** Kid Publish and Kid Shapes.

**#295 STICKER (C/M).** German disk labeling program with graphic images.

**#296: STACATTO.** Musical quiz game. Just listen or try and guess the song names as quickly as possible.

**#297: AMAZE.** Maze Construction Set. Draw an image boundary and then solve on screen or print out your maze.

**#298: C-SOURCE DISK NO. 9.** The source code to ST Xformer V1 and V2. (The Atari XE Basic emulator).

**#299: PASCAL DISK NO. 5.** Disk labeling program and referencing pixels on the screen.

## New - November 1988

**#277D: GNU C Compiler.**

**#280: LAMBERT PICS NO. 4.** 18 Degas Elite pictures.

**#281: MANUAL MAKER.** Use GDOS and GDOS fonts to produce attractive manuals.

**#282: DAMONOID.** (C) Arcade game. NO MEGA.

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**#284: DESK ACC NO.3.**

**#285D: STAR TREK (AVS).**

**#286D: CALIFORNIA RAISINS (AVS).**

**#287D: MIAMI VICE (AVS).**

**#288, #289, #290, #291: GNU C Source**

**Code:** Four disk set includes Make and Other Utilities, Assembler, Compiler, header files, DIFF source and a collection of documentation.

## Ordering Information

The programs on these disks are either public domain, or copyrighted but distributed freely to the public (e.g. ST Writer, CN#176 and NeoChrome, CN#14), or shareware products where the author would like an additional payment if you decide you like their products. Disk numbers with a 'D', e.g. 309D, indicate a double-sided disk. All disks are guaranteed. If you ever have a problem with a CN disk, just return it and we will gladly replace it.

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**#18: UTILITY NO.1.** anaclock, breakout, deskcalc, digclock, puzzle, ram, ramacc, bicalc2, calc, calca2, noverify, dblboot, copydisk, sectedit, squeeze, unsqueeze, format, mushro, stdio, title.bas, dump, labels, print, spool, printdir, degcol, effects, neocon, omaker, smaker, slide, windows, timedate, and calc.

**#25: DEGAS UTILITY.** 24 fonts (archaic, grammar, stencil, graph, classical, kung fu, thinte, graphics, cursive, olde, woodcut, normal, daisyw, oldeng, ascii, system, double, rally, computer): 12 printer drivers (cgp220, ct1300, epson3, jx80c, mini193, ml193, necp3b, necp3c, ok120c, pj1080): prgs convert Degas->Neo and Koalpad->Degas.

**#30: UTILITY NO.2.** Assembler: cpp22: rcv2 and dcopy: Forth-83: printdir and timedate: Labels: Pallet: Pieswitch: Squnsq: Volume.

**#36: DESK ACCESSORIES.** TI-59 calc, calendar, digi clocks, ramdisks, free ram, screen snapshot, background colors, sector ed, games, ST Tips.

**#61: PRINTER DRIVERS.** First Word(ascii, bro10p, bro12pt, bro15pt, brohr15, epfx80, esfx80, epsix80, lq800, oki02, oki192, pan109, prortr, pr1215, lstrnx10), Degas (psonson, cgp220, ct1300, epson3, jx80c, ml193, ml84, ml193, necp3b, necp3c, oki20b, oki20c, pj1080, prowtr, sg10), Star and Gemini fonts (computer, cut, french1, olde, outline, russ1, smooth, stylish), spool33k.prg: prtspool.ttp.

**#63: UTILITY NO.3.** Word400 editor desk acc, floppy disk indexer, file squeezer & unsqueezer, pic conv & comp utilities (dega2color, dega2neo, doadeg, neo2dega, tinyview, tinystuff, tiny docs, picsw6.prg), ramdisk copy prg (ultcopy), library prgs (backup.ttp, contents.prg, frmtutil.prg, fdi.tos), timedate.acc, spool33k, sector editor.

**#72: UTILITY NO.4.** Format & copy 400K and 800K: library & delibrar: make512 & make1meg: Fn Key Labels: muscnvrt: desk Acc(ccli, fastram, fortune, prints, deskman): file-print: proff: print hi-res on color system.

**#73: UTILITY NO.5.** archiver: Copy files to ramdisk: ramdisk acc: disk lib prgs: disk speed checker: encrypt: title page printer: V2 of desk acc wp: convert Megamax H files to Personal Pascal I files: calc prg.

**#81: UTILITY NO.6.** V3 of word400: address book prg: change drive icons to diskettes: directory lister: quick I/O formatter: fast ramdisk: Font Ed: disk dir lister: hard disk backup: fix xmodem downloads: search disk dir: send setup cmds to Epson printers: test RAM.

**#94: UTILITY NO.7.** Make clipboard acc, analyze dBMAN com files, print out strips of pic files, banner, marquee, blast (fast display of Pix & Neo files), Mac to Atari, Picdex, tiny prints.

**#95: UTILITY NO.8.** formatter (allows 9/10 sectors/track, 80-82 sectors/disk side, fast or normal read: convert Dega fonts to Degas Elite: elec schematics for use with Easy Draw.

**#102: UTILITY NO.9.** Early version of Apple II emulator, bulk erase, disk dir, printer, disassemble, ramdisks (eternal, yard), disk format acc., ram disk loader, disk labels printing program, monitor st (debugging tool).

**#107: ST RAM DISKS.** A must-have disk! 25 Ramdisks, 7 Auto Loaders (fdccopier, intramdk, loadram, eternal, yard, ultcopy, fastramd, autoramd, mike5, ...)

**#113: UTILITY NO.10.** TURTLE a hard disk backup utility: PROGCALC a programmable calculator in medium rez: UNDELETER the BEST undeleter commercial or PD: FORMAT3 (for best results in FAST READ use 9 sectors a track 82 tracks as 10 sectors a track is slower): Alan Pages' VIDCOL.PRG to convert DEGAS Elite files to ASCII simulations of Vidtex for viewing by Flash.

**#117: ST DESK ACC NO. 2.** Acc load, eternal, format acc, index, kalklock, mobzdil2, new word, startup1.1

**#121: UTILITY NO. 11.** address book, text browser, arxx, format.gem, gem font editor, font loading acc, start1.1

**#126: PUB PARTNER UTILITIES.** Helvetic and Normal fonts with 18 various printer drivers including Epson, Gemini, Bluechip, Okidata, T321F, SB10F, LQ800F, SMM804, C8510A.

**#127: ST FONT EDITORS/LOADERS.** Font Loader (High-res only), Gem Font Editor, Ver 1.11, and FED Font Editor.

**#131: UTILITY NO.12.** Programmer's Utility disk: uuencode, uuencode, bucket, kill, scach, make, setinit, verify, volume, 1.filepr, case, mase...)

**#132: UTILITY NO.13.** Disk library program (Diskcat), two text editors (less & vix), disk copy programs (autodisk, decopy), startgem, access, rocp.

**#144: UTILITY NO.14.** Alarm clock acc, C shell, buffer setup prg., coldboot.tos, display any res DEGAS on any res monitor, script for DEGAS slide show, harddisk auto boot, multiple file printer, mouse ed., spelling checker, rambuffracc

**#145: UTILITY NO.15.** ASL (print out multiple documents), GULAM (command line interpreter), HDSCAN (selectively backup hard disk), LABELS (disk label prg), STARTGEM (start GEM prgs from AUTO)...

**#154: UTILITY NO.16.** MODULA-2 Utilities: context2 Modula-2 editor: m2print ("pretty print" program):makefile utility: qcopy (source for disk copier prg): and m2proc (displays procedures).

**#155: UTILITY NO.17.** dcopy20: diskfix: megablit drawing prg: most (view text files): qcopy: quikblit2 (quick disk labels): ymodem batch accessory.

**#162: HARD DISK UTILITIES.** Directory count (gets around 40 folder limit): C source to HD directory: supra ver 2.61 utilities: turtle HD backup ver 2.15: add multiple HD to supra.)

**#166: UTILITY NO.18.** disk editor, musical formatter (gercopy), multiple formats (xutility), modify seek rates for 5 1/4" drives.

**#185: UTILITY NO.19.** Analyze copy protection (diskmech), format disks for Magic Sac, IBM, ST normal & fast read, normal or extended format (de formatter 2.2), ST maintenance programs (arundisc, brundisc, dspeed, memst1, priveye), ver2 of super boot.

**#206: UTILITY NO.20.** Set screen/text colors on bootup & save in separate desktop.inf files for each resolution (Bootup V2.05), Epson font editor: calculator and limited screen plotter in one: fast disk copier: graphic utilities: convert IFF files to compressed Spectrum: show Spectrum, Degas, and Neo pics from one slide program, convert AIM to Degas andDegas to AIM.

**#220: UTILITY NO.21: Your First Utility Disk.** Micro-Time Alarm Clock, ST Ramdisk and Printer Buffer, Clock/Calendar, ASCII Printout, DeARCHiver, Disk Mngr, Disk Directory Listing Prg, and Acc Selector and Resolution setter.

**#221: UTILITY NO.22.** Arcshell V1.8, ARC Acc, deformat acc, diskfree (speeds up--10 fold--gemdos diskfree() function), foldrxxx (takes care of 40 folder limit in TOS), fselv55 (replacement for GEM file selector box), super boot 3.2 (all-in-one type boot program).

**#222: Desk Pak Plus.** (Shareware) 10 desk acc in a single file: clock, calendar, phone book, calculator, appointments, free ram, note pad, copy file, delete file, desktop.

**#229: Easy Draw Utility Disk.** Fonts: (Chicago 7-36, Courier 7-36, Calig 7-36), Easy Draw Art (18 GEM pics: assissi, box\_brd, callig, clip-tmp, dailycal, disk\_lbl2, hi-tech, line-brd, pd-art-1, pd-art-2, rocky, scrolbrd, swiss, vhs-lbl).

**#234: UTILITY NO.23.** ST Floppy Disk Manager V1.0/2.0 (dskscan1), deluxe slideshow V2.0 (dsldis2), (Atari ST File System checker and repaier, V1.1 and File System Compacter (hdop-timz), Virus killer prg (penicilin), (Super Directory data file reader (sddfr12).

**#238: PUB PARTNER UTILITY NO.2.** New PP fonts (cyrillic, helvetic, hudson, and saturn), Printer drivers (hpd, hpf, lq1000f, necp7d, necp7f, and ps-plus), Font editor (w/docs) for creating your own PP fonts.

**#242: UTILITY NO.24.** ARC Shell II, V1.91, Desk Manager V2.1 allows greater control on system bootup, Ledbetter Utiities (collection of 4 utilities), Manager prg for those that use Tempus ed with TDI Modula-2 package (m2grv2), Powerful editor of VT52 graphics (vt pro), Redirect Alt-Help key so screen is saved in Degas format instead of being sent to printer (degasave).

**#253: UTILITY NO.25.** V6 of item selector (fselv60), disk formatter (cssformt), TOS patch to speed up hard disk writes, backup protected disks, new intersect ramdisk, check disks for viruses, translate IBM Wordstar to First Word.

**#254: UTILITY NO.26:** Graphic Utilities. Various conversion prgs (Spectrum to Degas to Neo, etc), display all 3 Degas on color or mono, save screen as Degas pic, Degas fonts to GDOS, Pic Switch V7, stuff/unstuff Tiny pics, display GIF format files.

**#255: UTILITY NO.27: Arc & Arc Shell.** Version 5.21 of arc.ttp and share program ArcShell II (Ver 1.95 & 1.96). Includes all C source code to IBM version of ARC.

**#260: Your 2nd Utility Disk.** Two greate utilities by J.A. Wrotniak: Address Book (acc and prg) and Zap-Card (simple data base program ideal for quotations, record collections, recipies, etc.) All docs included.

**#264: Xformer Utility Disk.** Disk for use with the XFORMER 8-bit emulator (CN #263). Contains DS 8-bit disk w/patched Atari DOS to provide double density DOS for use with XFORMER. Includes Turbo Basic.

**#276: Disk Cataloger and Label Printer.** Compiled dBMAN program. Shareware by Saraware).

**#279: Atari SLM804 Laser Disk.** Diablo Emulator 1.2, GDOS Boot 1.2, LCamelot font for Laser.



## Desk Accessories

**M8: DESK ACCESSORIES NO. 1.** 45 desk accessories.

**M18: DESK ACCESSORIES NO. 2.** 30 more desk accessories.

**M46: DESK ACCESSORIES NO. 3.** 35 desk accessories.

## Utility Disks

**M2: TELECOM DISK NO. 1.** BinHex, Free Term, FreeTerm.Doc, Kermit, PackIt III, StuffIt, TermWorks.

**M3: UTILITIES NO. 1.** DES, Font Doubler, MacDump, Mini Finder, PackIt III, Reverse Screen, RMover, Scan, Set File, SLICER, Ver Reader, Write Stream.

**M5: DISK LIBRARIAN.**

**M9: UTILITIES NO. 2.** Bind Icons, Change Appl. Font, Convert Desk Acc., Desk Accessory Mover, File Hacker, FontDoubler, Index, Make-Screen, MicroFinder, PurgeIcons, RamASharp, REdit, ResEd, SelectPaint, Show Version, User Interface Demo.

**M11: PRINT UTILITIES.** Coventry-12, Disk Labeler, Fast Eddie, Font Mover, Ink, MacWrite 4.5 to Text, miniWriter, MockWrite, Pica-10, Read-MacWrite, Walla Walla-9.

**M27: UTILITIES NO. 3.** Browse/Shazam!, Clocks: analog & digital, Edit, FEdit, launch, lazyMenu, Magic Beep, Menu Editor, microFinder, Quick Dir, Quick Print, RamStart, Road Atlas, ShrinkToFit, SienEdit, SortMenu, SortMenu Code, SuperFinder4.0, TabsOut, Unpit, WayStation.

**M28: RED RYDER 7.0.**

**M43: UTILITIES NO. 4.** DiskDup+, MacSnoop, RamDisk+, ResTools, Oasis (HFS), Font Librarian (HFS), Switch.

## Games

**M4: GAMES NO. 1.** Backgammon, Bash Big Blue, Curves, MacLuff, MacYahtzee, Maze 3D, Meltdown, Missile Command, Munch, Pepsi-Cas, Smile, Snow, Solitaire, Space Bubbles, Vax Runner II.

**M6: GAMES NO. 2.** Ashes, Black Box, Destroyer, HexPuzzle, Killer Kalah, MacPoly Demo, Office Attack, Point Symmetry, Snake, Solitaire, Trophy List, Wall Game, Wheel.

**M7: GAMES NO. 3.** Break the Bricks, Deep Ennui, Go, Mac Gunner, MacBugs, MacCommand, MacYahtzee, Wiz Fire.

**M15: GAMES NO. 4.** Alice, Amps 3(B2), Bricks, Canfield2, Iago, Lets Get Tanked!, MacHeads, Nim, Space Attack, Third Dim.

**M20: GAMES NO. 5.** Chase'Em, Crystal Raider, Daleks, Golf MacWay, Kill File, Kill, King, KingMacWrite, On-The-Contrary, StuntCopter.

**M21: GAMES NO. 6.** Guess, Hacker's Contest, Hot Air Balloon, Match, Ramm, Third Dim., Trick-Track, Utaan Attack, Zero Gravity.

**M25: GAMES NO. 7.** Billiards, Cross Master Demo, Flash Cards, Hangman, MacLuff, Master Guess, Safari, Venn.

**M30: GAMES NO. 8.** Bowl-A-Rama, MacTrek, Mystery Box, Shots, Star Trek Trivia Quiz, Window Blaster.

**M34: GAMES NO. 9.** 1000 Miles, Asteroids, Cairo ShootOut!, Donkey Doo, Duck Hunt, Pente 1.0.

**M45: GAMES NO. 10.** Blackjack, Gunshy, Humpback, New Social Climber, Panic, Puzzle, Star Trek Trivia Quiz, Video Poker.

**M51: GAMES NO. 11.** Bouncing Balls, Fire

Zone, Mac Word Hunt, Out Flank, Risk and Word Search.

**M53: GAMES NO. 12.** 3D Checkers, Bills Casino, BMX-The Racing Game, HeloMath, Mouse Craps.

**M58: GAMES NO. 13.** Klondike, Space Station Pheta, Mac Concentration, Sitting Duck, Hot Air Balloon, Think Ahead.

**M60: GAMES NO. 14.** Golf Solitaire, Mac Football, Euchre, Gomoku, Pyramid, Checkers, Runaround and Macpuzzle.

**M19: PINBALL CONSTRUCTION SET**  
**GAMES.** PCS Player plus 12 Games.

**M29: PCS GAMES NO. 2.** PCS Player plus 10 Games.

## Adventure Games

**M17: DUNGEONS OF DOOM 4.0.**

**M23: VAMPIRE CASTLE.**

**M24: DEEP ANGST.** 1 Mb ST only.

**M31: BLACK WIZARD.**

**M36: CASTLE OF ERT.**

**M40: HACK.** Ver1.03.

**M41: RADICAL CASTLE.**

**M63D: MOUNTAIN OF MAYHEM.**

**M65D: DEEP ANGST II.**

**M66: INTRUDER. (NEW)**

## Graphics

**M10: GRAPHICS NO. 1.** Amy, Artisto, ball demo, Big Ben, Brooke, Bugs, Curves, Display Message, Dragon, Fighting 51, Fourth Dimension, GARF, HotSex!, Liar's Club, Living Art, Max Headroom, Moire 3.0, Nightmare, Optical Illusion, Paint Grabber, Painter's Helper #1, Pattern\*, Pisces, Rotations, Saddle, The Fourth Docs, ViewPaint 1.5.

**M12: MACBILLBOARD.** (MacPaint clone).

**M22: GRAPHICS NO. 2.** BlowUp, BlowUp Notes, CalendarMaker, Dynamo, Graphic, Mad-Menus, Math21, Rays, Simutree, Spiro, Tree, Van-landingham.

**M26: GRAPHICS NO. 3.** 3D Sketch, AniRama, Bin/Graphics, Brownian Motion, Control, Fractal Contours, Fractals, Icon Collector, Julia, Make-Paint, Melting Clock, Small View, ShapeArt, Star-Flight, Window Demo.

**M47: GRAPHICS NO. 4.** Cursor Designer, Earthplot, Graphics, Mondrian, MotionMaker, Moving Finger, Wallpaper, Zoomation.

**M57: GRAPHICS NO. 5.** Micro Film Reader, Bomber, Iliana II, Preview, Super Ruler, and XVT-Draw.

## Font Disks

**M13: FONT DISK NO. 1.** Akashi, AlgBlurb, Algebra, Athens, Boxie, Dover, Geneva, Hood River, ImageWriter, LED, London, Los Angeles, Luxor, Mars, Monaco, Park Ave, Pica, Ravenna, Rome, Runes, San Francisco, Seattle, Steel Brush, Ultra Bodoni.

**M14: FONT DISK NO. 2.** Bookman, Courier, Coventry, Dali, Geneva, Hebrew, Manteco, Shadow Box, Sri Lanka, Times, Walla Walla, and font display w/docs.

**M16: FONT DISK NO. 3.** About Lachine, Alice, Avante Garde, Berkeley, Broadway, Camelot, Cartoon, Centura, Chancery, Eon, Exeter, Falling-water, Fantaste Key, Fantastel, Future, Ham, Helvitica, Hollywood, Lachine, Lineal, Madrid, Pitt-subrg, San Quentin, Silicon Valley, Stencil, Unicol plus DAFont2.da and SysFonts.da.

**M32: FONT DISK NO. 4.** Canberra, Chicago, Humanistic, Music, New Dali, Palencia Application, Palo Alto, Pioneer Shadow plus F/DA sorter

and Font Tester.

**M35: FONT DISK NO. 5.** Beehive, Beverly Hills, Boise, Chicago, Courier, DeStijl, Ham, Happy Canyon, Helvitica, Mod, Chicago, Old English, Square Serif, Sri Lanka, Worksheet.

**M42: FONT DISK NO. 6.** Berlin, Boston II, Courier, Dorza, Highwood, MicroBoston, MiniBoston, New York, Palo Alto, Sparta, Stiletto, Symbol, Tatooine, Venice, Wartburg.

**M44: FONT DISK NO. 7.** 42nd Street, Aldous, Art Deco, Ascii, Blockbuster, Border, Clairvaux, Coptic, Deep Box, Ivy League, Klingon, Las Vegas, Little Box, Madrid, Memphis, Minneapolis, Rivendell, Spokane.

**M50: FONT DISK NO. 8.** Alderney: Cairo: Cyrillic: Greek: Paint: Playbill: Rehovot: Runes: Washington: Zodiac.

**M61: FONT DISK NO. 9.** New Century, Helvetica, Columbia, Minneapolis, Creamy, Palatino, Detroit, and Zap Chancery.

**M64: FONT DISK NO. 10.** York, Paint, Miscpix, Icon, Cupertino, Arabic, Fallingwater, Schematic, Moscow, and Isengard.

**M67: Font Disk No. 11.** Cavanaugh, Icon2, Fletcher, Math-Greek, Toyland, Troyes, Memphis, Provo, Scan, Tombstone, Southbend, Klingon, Wall Street.. (NEW)

## Clip Art

**M33: CLIP ART NO. 1.** 12 clip art screens plus ViewPaint 1.5.

**M52: CLIP ART NO. 2.** 27 clip art screens.

**M55: CLIP ART NO. 3.** 26 clip art screens.

## Commercial Demos

**M37: MAC-A-MUG PRO DEMO.**

**M38: VIDEO WORKS PLAYER NO. 1.** PD player + 11 movies.

**M39: DEMO DISK NO. 2.** Anatomiser, Desk-Paint, and SuperPaint.

**M54: DESIGN.** Includes 5 samples and full documentation.

**M59D: DEMO DISK NO. 3.** Kaleidagraph and Geographics II. Double-sided disk.

**M62: DEMO DISK NO. 4.** Math Blaster and Blob Manager Demo.

## Hypercard Disks

**M48D: HYPERSTACKS NO. 1.**

**M49D: HYPERSTAKCS NO. 2.** NOTE: M48 and M49 require HyperDA and some form of DA tester--Sample It! (M46) or DA Tester 1.5 (M8 or M18).

**M56D: HYPERSTACKS NO. 3.** Atkinson's 786K Clip Art Stack, with 500 pieces of clip art. Disk requires HyperDA.

## Spectre 128 PD Library

**S1: MacWrite 5.0 Demo**

**S2: MacPaint 2.0 demo**

**S3D: Red Ryder 9.4 (DS disk)**

**S4D: Aldus Freehand Demo (DS)**

**S5: Games #1: Banzai, Monopoly 4.0, ATC 4.0, Mines, New Daleks, Brickles 4.0. NEW**

**S6D: PowerPoint Demo. NEW**

NOTE: These disks require Spectre 128 and do not work with the Magic Sac..

Ordering information on page 38.

# NeoDesk V.2: Mr. Wilga Strikes Back

## ...And He Is Still A Perfectionist!

by J. Andrzej Wrotniak

The original *NeoDesk*, written by Mr. Dan Wilga (known for some very good public domain offerings) and distributed by Gribnif Software, appeared in the Spring of 1988 (see the June issue of *Current Notes*). The program looked good, behaved properly, but it had one main disadvantage: it required almost 150k of your precious RAM. This was quite annoying for those of us with one megabyte of memory, and for the 520K machines *NeoDesk* was useful mostly as a nice conversation item (although it could be quite handy for extensive file-rearranging sessions).

Thus, the usefulness of *NeoDesk* depended very much on the installation it was used with. In my office, where I have a 1040 with a hard drive, I have been using *NeoDesk* all the time (it can become quite addictive). On the other hand, on my home 1040 with two floppy drives (this was before my friendly local dealer made me an offer on a hard drive that I could

not refuse), the program was not very useful.

### Version 2 Arrives

Last December I spent another \$17 to get the upgrade, Version 2, of *NeoDesk* directly from Gribnif Software. And, boy, what a well-spent investment that was.

The major improvement is that now *NeoDesk* consists of two parts: a memory-resident shell, taking about 25K of memory (and this is all you lose), and the desktop proper. The latter is deleted from memory every time a program (other than a desktop accessory, of course) is executed, reloaded back when the program terminates. (Note: the same approach is used in the GEM desktop on the IBM PC).

Before we get down to details, let me offer a few words of explanation. This review is based on running *NeoDesk* on an Atari 520ST and Atari 1040 ST, in

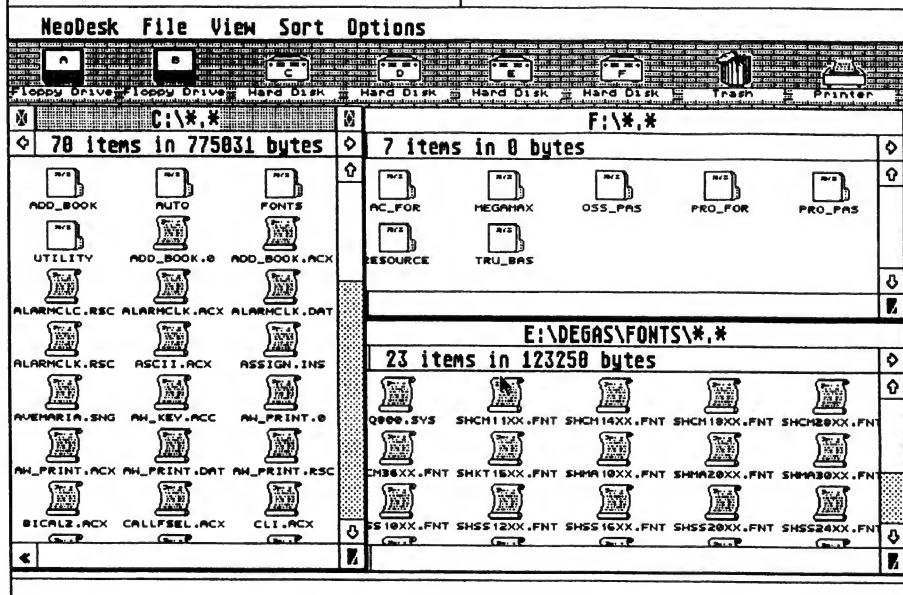
monochrome and color, with and without a hard drive. *NeoDesk* will not work in low resolution (a reasonable limitation) and is compatible with the Mega STs. The illustrations are from a monochrome screen, with my customized desktop top and icons, except for the first illustration which shows the icons supplied with the program.

### What is NeoDesk?

Let me start from the beginning. *NeoDesk* is all (well, almost all) that the Atari GEM desktop should have been, replacing the latter (and its familiar directory windows and desktop icons) and smoothing out many of the rough edges in directory and file operations--and not only that.

"What is wrong with the Atari GEM desktop?" you may ask. Well, a lot of small things, which, when taken together, may make a difference between a fairly convenient user interface and a very good one. These things will, I hope, become obvious from the brief listing of *NeoDesk* features below:

- ✓ Desktop windows reappear where you expect them. In the GEM desktop the placement of re-opened windows is quite random (good for betting during office hours but very annoying otherwise).
- ✓ File icons are always rearranged to fit the window width: e.g., if a window is four icons wide, the fifth icon will be in the next row (as opposed to not being visible at all).
- ✓ In the "Show As Text" mode, file size, date and time may be



displayed or not (any or all three), so that multi-column display is possible. This sometimes makes multi-file operations much more convenient. (In monochrome two font sizes may be used here, as well).

- ✓ File copying preserves the original time stamp—*very* important! What counts, is when the file was really updated, not when it was just moved to a different directory!
- ✓ A fix is provided for the GEM Desktop bug, limiting number of files in a window to 112.
- ✓ Selecting a file will display its size and time stamp in the window information line (no need to go to the "Show Info" menu entry), while selecting a group of files will display their total size.
- ✓ There is a possibility of "touching" a file (i.e. updating its time stamp)
- ✓ A *Degas* or *NeoChrome* picture can be automatically installed on the desktop (remember *Easel*, the best way to trash 15 dollars?).
- ✓ Now comes my favorite option, very convenient for the hard drive users: you can drag icons representing the most frequently used programs (up to 16 of them) to the desktop. The programs can then be executed without opening their windows at all (and the desktop, of course, can be saved to the disk).

### ...And This Is Not All

These are the features of *NeoDesk* I use most, but there are many more, some of them quite obvious (keyboard alternatives for most of the menu choices, adjustable disk formatting standard, limiting the displayed files to those with a given extension, e.g. \*.FNT), and some useful to only a very few of us (editing of environment strings, hooks for batch file processor).



The important point is that *NeoDesk* does not expect the user to un-learn the habits gained in operating the standard GEM desktop: *upward compatibility* is the word.

There are three supporting programs thrown in with the package:

- ✓ A desktop/icon editor, allows you to change the background pattern and the icons (a nice feature, since I didn't like the icons originally included with the program).
- ✓ A control panel accessory, smaller and nicer than the original Atari's CONTROL.ACC (with a corner clock, too).
- ✓ A printer queue accessory, so that you may just drag files from windows to the printer icon.

### Good News And Bad News

As I already wrote in June, Mr. Wilga seems to be a perfectionist. Thus, I am not surprised that the program feels good and runs clean (on the other hand, the first time a program of this type misbehaves, I just throw it away). The user manual (about 70 richly illustrated pages) is well-written and

nicely printed, quite useful for the beginner and advanced user alike.

This may have something to do with the fact that at the time *NeoDesk's* manual was being written, the only guy in North America whose English is worse than mine, and whose knowledge of computers in general and Atari ST in particular is around -20 (minus 20!) on the 0-to-10 scale, was busy translating 700 pages of documentation for *GFA Basic Version III* (my personal candidate for the most embarrassingly pitiful, unreadable and incomprehensible book written in the XX century in *any* language on *any* subject, computers or not—and I have seen many of them).

Now, with my adrenalin level slightly down, back to the *NeoDesk*. This otherwise well-designed and well-implemented program has one flaw: the "Sort By Type" option still does not work right. The documentation states that files with the same extension will be sorted according to the file name (e.g. A.PRG, B.PRG, C.PRG, A.RSC, B.RSC etc), exactly like it is done in the Atari GEM desktop. This is, unfortunately, not the case—within one extension, files remain unsorted, which sometimes

can be quite annoying.

The overall quality of the program and Mr. Wilga's attention to detail are good indicators that the fixed version should be available within weeks. To test Gribnif's responsiveness, I have just posted a message to them on GEnie (without mentioning this review, of course). Next month you will know how it worked.

### Is NeoDesk For You?

That depends. If you have a hard drive, the answer is definitely YES. It will make your daily sessions with the ST much more enjoyable and efficient, to say nothing of impressing your friends. Do not think any more, go and buy it.

Those of us with floppy-based systems may find *NeoDesk* quite useful, especially on a 1-mega-byte machine. As I said before, this version reloads itself after executing any other program, which means extra time (40 seconds or so) spent waiting for the desktop to reappear.

If you do not like waiting, then this feature can be disabled, but this means losing about 150k of memory (prohibitive on a 520ST). The ultimate decision whether to

spend \$50 or not (about \$40 after discount) depends on how many desktop operations (file copying, moving, renaming etc.) you perform, and how much you like nice-looking and well-behaved programs.

*[Gribnif Software, P.O.Box 350, Hadley, MA 01035, (413)584-7887.]*

### Turbo-ST Update

Last month I promised to let you know about the upgraded version of *Turbo-ST*. My \$1 upgrade arrived promptly, but I still

cannot recommend this program and talk you into spending another \$50.

Speeding up of dialogs is not noticeable, if any (I have not run any benchmarks, because if I need a benchmark to see the difference in this kind of application, then it is simply not worth it). The program misbehavior in outputting text in non-standard size was not removed (the requested screen font size is still ignored, although in a slightly different way—let me spare you the details). And the outrageous price is still the same.

## South Shore Atari Group Public Domain Disks

Various programs including CAD3D animations, games, utilities, accessories, pictures, and many more.

Send a S.A.S.E. for a complete catalog listing to:  
S.S.A.G. PD Library c/o Dana Jacobson  
1121 Saratoga Street; E. Boston, MA 02128

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NeoDesk Control Panel	
Date: 01/08/89	Set Date and Time
Time: 07:42	am/pm 24-hr
Corner Clock: On	Off
Screen Saver: On	Off
Toggle Screen Every: + 5 - min	
Blitter Chip: On	Off
Repeat Key After: [icon]	0300 ms
Repeat Every: [icon]	0040 ms
Invert Screen Colors [icon]	[icon] [icon] [icon]
1048576 bytes total, 550622 free	

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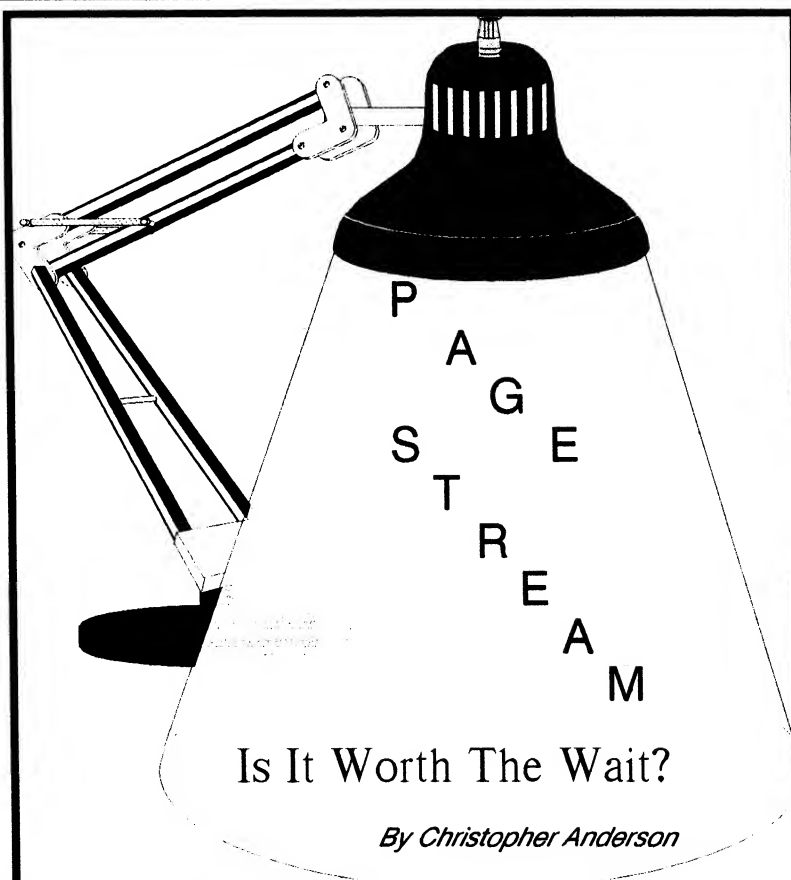


## A Long Gestation

In the two years since the release of Soft-Logik's acclaimed *Publishing Partner*, the desktop publishing market has changed, and there are now several sophisticated packages available for the ST. In response to the new competition, Soft-Logik has been working since fall 1987 on *PageStream*, a new program that the company has promised will deliver more of everything; more flexibility, more power, and more features than any competing ST package. But after the program's troubling public adolescence last year (several shamefully unfinished versions were released prematurely), even Soft-Logic loyalists have joined the ranks of those who wonder if such a program will ever be released.

## Dozens of Promises

As of this writing, that's still a legitimate question. Dozens of promised release dates have slipped, with little to show but a name change (from *Publishing Partner Professional*), parts of a manual, and several disks of software in various degrees of completion. But judging from the latest in-house versions of *PageStream*, the end may be in sight. The version (dated 12/22/88) obtained by *Current Notes* for this review has cured many of the most frustrating bugs in the infamous "beta" versions sent to advance



customers, and Soft-Logik expects to ship a finished program early in the new year, perhaps even by the time you read this.

Based on the potential significance of this program and its nearness to completion, CN has decided to forego further delay and review it "as-is." According to Soft-Logik, no major changes (other than the bug fixes) are planned before the final release.

The original *Publishing Partner* was the first desktop publishing program available for the ST, and despite a series of buggy and crash-prone early versions, it soon became a hit. Although it has since been topped by a number of more polished packages, it introduced many Atari owners to home publishing and served to help establish the ST as a viable platform for production and design.

*Publishing Partner* is still a notable package, with a laudable

flexibility and several unique features. But compared to a workhorse like Time-works *Publisher ST*, it's an odd-feeling and rather quaint program, with spidery, near-Victorian dialog boxes and immediately recognizable printed output. It drew an overwhelmingly positive reaction from the ST community, however, and the prospect of a powerful "professional" version drew a great deal of enthusiastic support and attention when Soft-Logik first hinted at an upgrade.

## Overly Optimistic

According to Soft-Logik, *Publishing Partner Professional* (PPP) was first announced at the 1987 Fall Comdex show, with an expected three-month wait before shipping. Based on that estimate (optimistic to the tune of 15 months, Soft-Logik now acknowledges), the company sent full-page ads announcing the program's availability to major ST magazines for publication in the early spring. Many *Publishing Partner* owners responded, sending in checks for the upgrade.

It soon became apparent that the new version was going to require more than a little tweaking of the original *Publishing Partner*'s C code. In fact, Soft-Logik decided that PPP should be completely rewritten in assembly language, from the ground up. Unfortunately, Soft-Logik has only one programmer (Deron Kazmaier)



for the ST. Equivalent programs like *Pagemaker* for the Macintosh are written by large teams of programmers and often take years to complete.

But as 1988 played out and the checks continued to come in from *Publishing Partner* owners seeking an upgrade, Soft-Logik continued to maintain the stance that PPP was "three weeks" or "a month" away from completion, and the company continued to advertise the program as available.

## Unusable Software

In September, Soft-Logik, responding to "an informal poll," which suggested to them that users would rather have unusable software than no software at all, mailed their advance customers a beta version of the program, a binder, and the reference section of the manual. In reality, the program was not even at the "alpha" stage. Nothing worked; it couldn't even print. Nevertheless, Soft-Logik cashed the checks and said the final version would be along in a month.

When the first release version eventually did arrive in October, it came with a list of 20 known bugs (and several times that many that weren't listed), the rest of the manual, and the new name "*PageStream*." (Media Cybernetics, a company developing software for the IBM PC, had laid claim to the name *Publishing Partner* and was willing to fight for it.)

Since then, Soft-Logik has continued to work on the program, hoping to ship a bug-free version before the ST community's patience is exhausted. The package provided to us by Soft-Logik is an in-house-only version given revision number 1.5. Beyond bug fixes, this revision differs from that sent to customers in October, in

that it now includes a complete set of import and export translation "modules," more printer drivers, and several utilities.

## Terrific Specs

By specifications, *PageStream* looks terrific. It has "style sheets," text flow around irregular objects, fonts of every conceivable size, spell checking, text and object rotation, and an unusually all-encompassing search and replace capability. Based on features alone, it ranks not only as the most powerful DTP package available for the ST, but is even potentially competitive with the best packages for any machine.

The program uses the traditional "tool box" approach to the user interface. On start-up, a portion of the screen is given to icons representing various functions (drawing graphic objects like boxes and circles) and modes (text, object, frame, and inexplicably, object "reshape," which not only should have been placed in the menus, but according to the manual, *was* placed in the menus). This toolbox can be moved anywhere on the screen, or even hidden, to give the largest possible area in which to display the document.

Unlike the original *Publishing Partner*, *PageStream*'s documents are displayed in true GEM windows. That means that beyond the usual scroll bars and resize boxes, up to six windows can be opened at a time with objects and text exchangeable among them. Documents can be viewed at any magnification, and two pages can be shown side-by-side. In contradiction to the manual, however, only one (the left one) can be edited.

*PageStream* is designed to be equally capable at long and short documents. Like *Publishing Part-*

*ner*, it uses a "master page" for creating features that are intended to appear on all pages. It also shares with *Publishing Partner* the use of "columns" (known as frames in other programs) to hold text. Linked columns can be created on any number of pages with a single command.

## A Minus & A Plus

Text importing currently supports *First Word* (it's undocumented, but *Word Writer* will work, too), *WordPerfect*, and ASCII with or without returns at the end of every line. Graphic formats supported include GEM metafiles (e.g. Easy Draw), Neochrome, DEGAS and DEGAS Compressed, IMG, Tiny, and IFF scanner files. The program can be expanded with external "modules" (something like printer drivers) to convert future formats. Only the object-oriented graphics can be edited, however. The inability to edit bit-mapped pictures beyond a single crop during import is a significant limitation, and there is no provision for scaling pictures so that the original proportions are maintained.

On the plus side, *PageStream*'s ability to *export* text and graphics is surprisingly useful. The program sports some relatively sophisticated drawing functions like arcs, object rotation with slanting and twisting, and freehand drawing. It's not inconceivable that one might want to save graphics created with *PageStream* for use with other programs. Similarly, text created in the program can be saved in several formats, making it possible, for example, to upload an ASCII version of your newsletter to a bulletin board.

## Centering Objects

Another powerful feature is the ability to "align" objects in a group

or alone. For a single object, that means that it can be centered vertically or horizontally on the page, or aligned with the margins. A group of objects can be centered with respect to each other, or lined up with one of the outmost members. An example might be centering a graphic inside a box, or centering a free-standing caption beneath a picture.

*PageStream* offers automatic or manual hyphenation and kerning, as well as limited spell checking. It's hard to recommend the spell checker, however. Its dictionary includes only about 10,000 words, not nearly enough even for common usage (although new words can be added). Even if the dictionary were more complete, it's unlikely that anyone would use the checker for more than the occasional word or headline. The program laboriously looks up each word in the disk-based dictionary, an extremely slow process even with a hard disk.

### Output Speed

Printing has been speeded up considerably since the October release. A page of text and graphics with several different fonts took between 15 and 20 minutes to print out on a Hewlett Packard DeskJet at 300 dpi and under 15 minutes for an Epson 9-pin dot matrix printer. The printed output is somewhat heavy (as is *Publishing Partner's*), but with the exception of the oddly spaced Helvetica font, the 300 dpi text looks quite good. Unlike GDOS-based packages such as *Publisher ST*, *PageStream* (like Postscript) uses "outline" fonts which scale to any size with no loss of resolution. The program comes with 10 fonts.

One of the most important factors in rating the useability and friendliness of a desktop publishing program is the speed and "smarts" of its screen redrawing. Compared

to packages like *Publisher ST* or *ReadySetGo*, *PageStream* uses what you might call stupid screen redrawing; that is to say, the whole thing gets redone after even small changes (like moving the scroll bar a millimeter). Benchmarking shows that redrawing a full page of text takes 28 seconds, compared to just over 10 seconds for *Publisher ST*. However, moving or resizing objects in our version often did not correctly redraw that portion of the screen and left

---

....compares well  
with top of the line  
in the IBM and  
Macintosh  
world.....

---

extraneous garbage behind. The solution? (Sigh) Move the scroll bar a millimeter and redraw the whole screen.

### Style Sheets

A touted feature of top notch DTP programs is the support of "style sheets," a feature that can greatly speed page layout by automating text styling. In *PageStream*, the term is slightly modified to mean the ability to attach a set of user-defined text and paragraph styles to a document. The styles are called "tags" and can dictate the font, justification, dimensions, and style of a section of text. Tags can be applied to blocks, columns, or globally to an entire document. Unlike most other comparable packages, *PageStream* has no way to save style sheets by themselves, or load them up for a new document.

Another potentially useful feature is also limited by its implementation. *PageStream*, like *Publishing Partner*, allows vertical or

horizontal "guides" to be placed in the document. Nearby objects will be attracted to these hidden lines, aligning the objects to a common border. How do you set the guides? Well, the manual says see the SET RULERS command under the VIEW menu. Unfortunately, there is no such command. Instead, you must show the rulers, then click within the ruler at the place where the guide should be. This process is painfully inaccurate, necessitating high magnification to place the guides with any certainty. Once they're in, forget about removing them. Trying to click on the same exact spot again is an exercise in futility. Ironically, *Publishing Partner* has a much better implementation of the feature. It places small markers in the rulers which can be clicked on or off.

### Overall Comparison

Yet overall, *PageStream* compares well in features with top-of-the-line packages on the IBM and the Macintosh. While it lacks some of the team-written polish of a program like *Pagemaker* (especially in its somewhat non-intuitive interface), it's extremely flexible. Once you learn *PageStream* (roll up your sleeves, save often, and don't bother looking to bare-bones manual for much help), you should be able to create documents worthy of the best DTP software.

In the hands of the power user, *PageStream* offers a host of potentially useful functions. A control key combination allows access to the extended ASCII character set and all its foreign and mathematical characters. Color output can be either on a color printer or mechanically separated. (Each color is printed in black and white on a separate page. A commercial printer can overlay these images

with different inks to achieve a multi-color final image) The printers supported range from 9-pin dot matrix to professional Linotype typesetters. Search and replace can be extended to styles and attributes (for example, replace all 10 pt Helvetica bold with shadowed 12 pt Times). Documents of any size can be created and then printed out in "tiles," then taped together to form posters or large banners. At the other extreme, up to 16 "thumb-nails" (miniature versions of pages) can be printed per page to give an overview of an entire document's layout.

The current bugs fall mostly into the annoying-but-not-insurmountable category. For example, the *WordPerfect* import module did not work properly in our version, but by importing the text as ASCII and doing some hand cleanup we were able to use it without converting it to another format. The most serious problems in the October version (the printed output bore very little resemblance to the document on-screen, just to mention one particularly egregious example) have been cleaned up, but dozens of less incapacitating bugs remain.

### Decision Time

Judging from the progress Soft-Logik has made since October, a clean version of the program is not far off—if the company lasts. According to Vice President Brian Sarrazin, Soft-Logik is in dire financial straits and may not survive through spring without a vast increase in sales. To date, many prospective buyers have wisely delayed their purchases until the program is finished and the reviews are in. With this in mind, there are clearly two viable options open to ST owners contemplating *PageStream*.

### 1) Buy the program, and hope that many others do, too.

This is undoubtedly a gamble. On one hand, *PageStream*, in its final version, will be all the publishing power anyone could likely need, a program literally worth buying an ST for. On the other hand, Soft-Logik could go out of business tomorrow, leaving users with a program that is 95% finished, but still with frustrating bugs. The potential pay-off is great; at an expected street price of under \$130, the completed *PageStream* will offer capabilities on the level of software costing over \$500 on other machines, and the upgrades will be free. But the risk is not insignificant. If Soft-Logik does go out of business, there is no assurance that the program will ever reach its considerable potential.

### 2) Don't buy the program, or buy another program.

There are several excellent DTP packages available for the ST. *Publisher ST* is rock solid, and can produce truly professional output. While it can't do all that *PageStream* can, it does nearly everything the average desktop publisher is likely to need, and its elegant interface is a model for the industry. Other packages to consider include Calamus, a powerful import from Germany hindered only by a maze-like interface, and Fleet Street Publisher II, which is not yet available but sounds promising.

Maybe by the time this review comes out *PageStream* will already be the terrific piece of software it has the potential to be. In that case, the decision is vastly simplified—if you can convince yourself you need the power, buy it with no delay.

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# EZ-Grade

## A Teacher's Gradebook

*Review by Bill Mocs*

The first time I used a computer to record the grades for my classes, I faced a simple spreadsheet. That meant writing my own formulas, checking for their accuracy, revising those formulas as I added project grades, and pouring through the manuals in a constant search for shortcuts.

It was not an easy process. And it did not last. I gave it all up after one grading period and returned to the straight-forward and comfortable green books most teachers still use.

**The Morning Bell.** *EZ-Grade* could change that thinking for many teachers. It is an easily-used method to record grades and it offers numerous helpful, even valuable, features.

Start by entering a class list. Last name ... first name. Follow the prompts. Sixty (60) names can be on one class list. Larger classes will need to be broken into smaller sections.

Then enter a grade. The maxi-

mum number of grades per class file is 90. The grade can be one of six types: Test, quiz, homework, laboratory, miscellaneous, or extra-credit. Each score can be up to 999 points in value.

While the grade types cannot be changed, you can, of course, simply use one of the names for your own need. For example, I used the laboratory section for an important project my Social Studies classes completed.

Each of those six grade types can be given a percentage weight for the total grade average, or the weighting can be turned off, giving each grade equal value. If you do use weighting, the weighting can be easily adjusted. I found this a very useful feature.

If a student did not earn a grade, you can enter a negative number for that student's grade. Then his average will not be affected by that missing grade. There is an important exception to this. If there is only one grade in a section and grades are weighted, the overall average will be figured with a 0% for that section if no grade is listed.

After grades have been entered, you can view the class's letter or percentage grades or take a look at the statistics for the class or for a single (grade) entry. The statistics can only

be viewed, not directly printed. You'll be able to set your own letter grade scale, basing that on your school's grading scale.

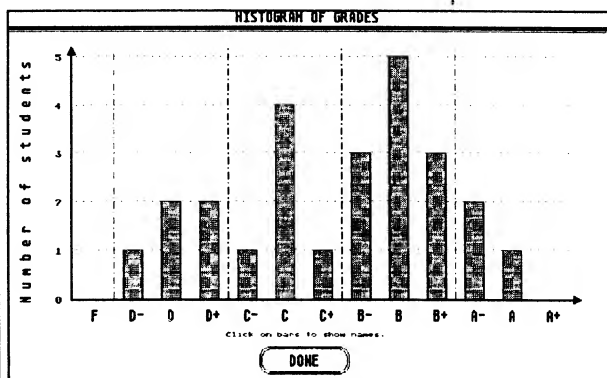
**Recess.** It's possible to curve a score in either direction or to drop a low score. At the end of a grading period, it may be useful to collapse all grades to a single grade. Comments, up to 70 characters, can be listed for each student.

There are numerous printing options available. A blank page is available to record grades. A complete gradebook page, listing all grades, can be printed. Other printing options include: (a.) status report, like a gradebook page only listing students by student number; (b.) class summary, including absence data and averages in each graded area; (c.) grade summary, noting information on a single grade for all students; and (d.) progress reports, including comments and suggestions, for individual students. There's a menu to enter printer control codes if your printer is not Epson-compatible.

**Lunchtime.** Nearly all of the information recorded by *EZ-Grade* can be edited. The 60-page documentation is complete and well-written. The features are clearly explained and helpful suggestions are listed. An index is included. I noted a few negatives with *EZ-Grade*, although they are relatively minor.

It's not possible to abort a grade-entering session, so have your information together before you sit down. When grades are entered, it's necessary to enter the number correct. I tried entering the actual number correct for each grade, but, in the future, I expect to simply enter the percent correct.

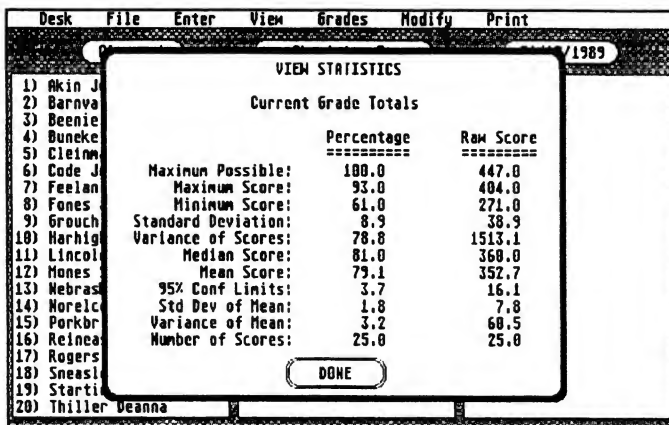
There are no keyboard alternatives to the mouse. A very helpful



A Histogram. Note that you can click for the names associated with any grade.

feature, however, is the use of the right mouse button to exit menu screens.

I teach 6th grade and have the same students for several classes. To obtain final grades for each student, I need to print out each subject/class separately and then look through the separate papers to find the grades for a single student. This is not especially cumbersome, but it would be useful if I could obtain all grades for a single student at one time and on one paper. This would be particularly helpful for the printed pro-



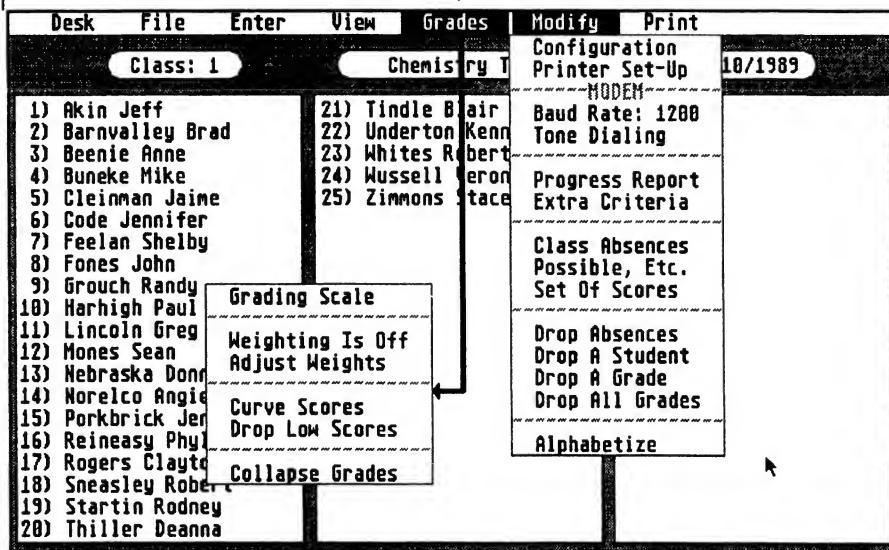
Grade make playing the "what if" game very easy. "What if" I made that project worth 40% of the final grade instead of 25%. "What if" I curved that one major test grade.

**Dismissal.** I'm often disturbed to find software designed for teachers and students too often has little value in the real world. Software authors may be well-educated and understand computers. That doesn't mean they have any idea what teaching and teachers need. I did *not* have that feeling here.

McKim is a high school teacher. And, in noting the myriad features of *EZ-Grade*, I could almost see the chalk dust.

Easily used. Many capabilities.

[Integral Software, 6211 Beachview Dr. #65, Indianapolis,

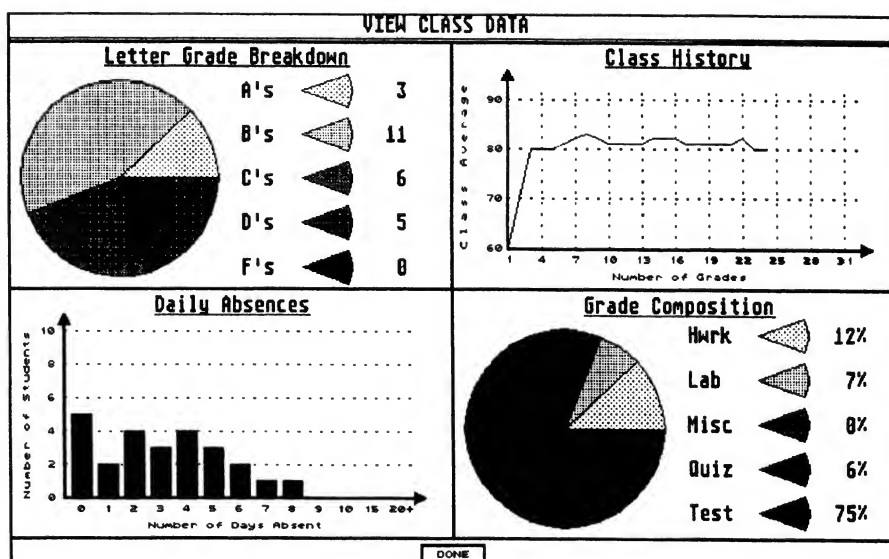


GEM Menus -- also showing the data screen with a class list.

gress reports. Teachers in higher grade levels would probably not have this need.

*EZ-Grade* (\$39.95) was written by Brent A. McKim using GFA BASIC. It is not copy protected. The disk includes a README file of updates made since the documentation was printed, and those updates indicate that this program is often updated, whenever McKim is able to add a new and useful feature. And a folder of EXTRAs, public domain programs of interest and use, is included on the disk.

The many features of *EZ-*



Class Data -- graphed data for a class. This cannot be printed directly.



## More Fun than the Original Starglider

*by Richard Gunter with Ashby Gunter*

**Your Name:** ..... Jayson.  
**Occupation:** ..... Star pilot *extraordinaire*.  
**Current Status:** .. Drafted by home system,  
                         Novenia.  
**Your Ship:** ..... Icarus.  
**Type:** ..... Prototype police cruiser/fighter.  
**Armament:** ..... Lasers, homing missiles(4),  
                         bouncing                 bombs(4),  
                         energy cube projector, neutron  
                         bomb(1)  
**Range:**..... Interstellar, limited due to bugs in  
                         prototype.  
**Other Features:** . Tractor beam, small cargo bay,  
                         pilot couch  
**Your Mission:**..... Repel Egron invasion of the  
                         Solice system. A new Egron  
                         weapon presents an immediate  
                         threat to Novenia.

## A Spectacular Sequel

It seems that the rotten Egrons have invaded the solar system of Solice, and are busily constructing a space station somewhere in the system. This station, a kind of Death Star, is equipped with a main gun that can destroy distant solar systems—most notably yours. That space station must not be used.

*Starglider II* is a spectacular sequel from Rainbird, and the only thing that interrupted Ashby's preoccupation with *Dungeon Master*.

*Starglider II's* graphics are an improvement over the original; rather than simulated vector graphics (open outlines), objects are made up of colored polygons that explode in a shower of colored shards. Nice.

*Icarus* is this game's centerpiece, and she is one honey of a ship! Mouse control is preferred, as it provides most precise control, but a joystick can be used. Keyboard keys provide additional controls for selecting weapons, activating warp drive, and operating the tractor beam.

The usual lasers are all you have to begin with: you'll have to locate subterranean depots to supply you with missiles and bombs. The energy cube weapon and neutron bomb are a bit tougher to obtain. The "fire and flee" homing missiles are great fun. A missile won't fire until it has a lock on its target

(indicated on the viewscreen), and will follow the target at high speed as it maneuvers wildly to escape.

## A Lot of Fighting

Your tasks are numerous. You need to fill out your weapons inventory. You must arrange to get the neutron bomb built, provide needed supplies for the bomb construction project, and retrieve the scientist that can finish the bomb. Meanwhile, you must delay the space station's completion. The most effective tactic, you're told, is to knock out the defensive projector stations. To accomplish all this, you must locate key items on various planets and moons, find functioning depots, trade for items you need, and do a lot of fighting.

While trying to get all this done, you are under constant attack by a distinctly weird assortment of bad guy machines—everything from space pirates to ground based missile launchers. There is no shortage of opponents, but you'll have to ignore most of the harassment. You're under lots of time pressure in this game.

All the flitting about uses up your fuel supply, so you must spend time and effort refueling fairly frequently. There are several ways to do so, all more or less hazardous. Save the game before trying to fly through the sun's corona—we found it a fascinating way to die.

Comparing *Starglider II* with the original, Ashby feels that the new game is more enjoyable; largely because *Icarus* has a much more realistic feel. The scope of the game is greater, the graphics are better, and the mission is more challenging.

## Incomplete Finish

*Starglider II* is not without flaws. Most annoying is the anticlimactic ending. After knocking out the space station, you receive a "transmission" offering congratulations, and observing that Novenia is safe—for now. That's it. *Icarus* keeps flying along. Not sure whether the game was over, Ashby flew to the depot that becomes something of a home base during action. Nothing. The depot went into the same sequence as at the game's start: "Do you want us to build the neutron bomb?" There was no indication that the game had transitioned to a higher difficulty level, and its internal

tables were obviously corrupted (useless graphics retained). Unsatisfying.

Other flaws are minor. The neutron bomb displays a frustrating refusal to launch. Ashby flew around the space station repeatedly, at times seeming to fly into the commander's bedroom. Finally, it launched, but neither of us has any idea why it would (or would not) fire.

One depot offers to trade an Egron mini-rocket (one of the needed items) for an asteroid. Capturing one, Ashby returned to the depot, only to be informed that for an asteroid he could not obtain an Egron mini-rocket. In my game, the trade was successful. Grrrrr.

The boot sequence is a little different from that described in the instructions, and the sound track won't load immediately. There is a save game feature, and a table of high scores maintained on the save disk. In order to retain the table, you have to make sure that you load it **before** restarting a saved game. I didn't, and lost all of Ashby's high scores. Oh, well...

The game package includes the combination ST/Amiga game disk, a Japanimation-style poster, a

soft-cover novella (read—it contains hints), instructions, and an audio tape cassette containing the game's theme music. The tape sounds a lot better than the disk version.

Protection is of the "don't lose the book" variety. The game asks for a randomly chosen word from the novella before permitting you to play. The game save disk appears to be in a non-standard format, and the rationale for that approach escapes me.

There's a nice feature on the pre-game menu: you can view the shapes that you'll encounter in the game, rotate them, completely freeze or step through the animation sequences, and zoom the view in or out. This is a handy way to become familiar with both targets and items you need to collect.

Play is smooth and fast, graphics are good, and the mission complexity and time pressure combine to make this game a challenge, but a beatable challenge. We rate this game a good play, and found it more fun than the original Starglider.

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# SPACE STATION OBLIVION

## Colorful Corridors of the Mind

*Reviewed By Frank F. Sommers IV*

**Life On a Planetary Moon.** The transporter hums and my crawler materializes in Sector 8, Beryl, amid the slash of laser fire. A few snap shots at the sentry tower show me that this tower can not be shut off by counter-fire, so I increase speed and dash the tank up to its base, under the line of fire from the sensor, to collect my thoughts in this new sector.

A quick scan of the viewfield reveals a weird building in the center of the sector, power lines connecting it to the wall. While there's a door in the long wall, over the door is an extension arm with a huge inverted pyramid pointing down at the path the crawler tank must take to enter. Having already been vaporized 23 times that night, I refuse to fall for so obvious a ploy. But first, how to take care of the damn sentry post (A left-over from the penal colony). Maybe if I sidle along the wall... A barrage of laser fire draws down my shield power and vaporizes me.

**Back To Square One.** Two lives later I've figured out the way to get into the sector without drawing down the sentry. (Each restart requires you to traverse all the previous sectors to get back to the problem area.) Now I raise the crawler up to its full three meter height and scan for punch-out points or floor switches. Nothing. Maybe the power lines to the building... My barrage of laser bursts dissolves two of the power lines. So that's it! Cocky as any panzer captain, I wheel around to the front of the building, already wondering what's inside.

I don't even get under the point of the pyramid before a shower of double-intensity bursts hits the screen. Can't shut it off by counter-fire! Shields failing! Back up!!

Tracks are locked, shields fail and I'm left looking at the entry screen, cursing and wondering how the devil I'm going to get into that damn building.

I'm playing *Space Station Oblivion*, a new release from Epyx Software. It drops you into a crawler on the moon of Evart, in an abandoned penal colony. Your assignment is to teleport up drilling rigs from the planet below and place them strategically so as to bleed off a dangerous gas build-up that the former Zeks ignored. You have eighteen sectors to clear in an hour and thirty minutes. Each sector has different problems to solve, illusions to penetrate, and guardians to avoid.

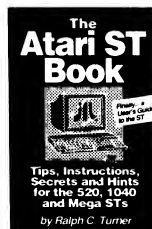
This sci-fi version of Dungeons and Dragons is well-written, and not easy to solve. In six to eight hours of work I still haven't even found eight of the sectors, or solved all the problems of the sectors that I have found my way into. Columns that can be knocked over to form bridges, mirror isomer sectors where all commands produce reverse effects, concealed switches that sometimes produce a change in this sector, sometimes in another—all make this an absorbing game.

The graphics are solid and interesting. As a relative newcomer to the ST I can't rate them against the competition --other than to say that they are not as detailed as the new *Dungeon Master* from FTL. However, the graphics routines are fast enough to make the motion of the crawler feel very good, and the perspective is complex enough to keep you frantically scanning for minor clues to hidden switches and pathways.

The game crashed my system several times without any harm, but it was necessary to re-boot to restart. Other than that, I had no problems that would prevent me from spending more time on mapping the moon.

Only the fact that my plane leaves for the coast this afternoon, and the fact that I only have an AT clone at home, prevent me from slipping the disk into my pocket before I wave goodbye to my family. Luckily the game has an AT version, something which, unfortunately, can't be said for *Dungeon Master*. Ah, well, I guess I'll have to go back to lawyering in 1989 after all, with too brief a respite blasting my way thru the colorful sectors of *Oblivion*.

The 159-page *Atari ST Book*, by Ralph Turner, author of *ST Informer's Help Key* column, begins where your owner's manual leaves off. "Very useful on every level, from rank beginner to the most advanced ST owner." (*ST Business*.) "Genuinely helpful . . . multitude of tips . . . pure pleasure." (*Current Notes*.) \$16.95 + \$2.00 shipping. Check, Visa/MC. Index Legalis, P.O. Box 1822-23, Fairfield, IA 52556. (515)472-2293



## STUCK IN A RUT ♦ Sam Wright

When playing an adventure game, it's not uncommon to reach a point of complete frustration. Everything had been going well until that one spot. Left may be a puzzle unsolved or a room unexplored, both beckoning and seducing you with their untold treasures and points (or serving as gateways to further aggravation). Nevertheless, you have tried everything under the sun and still cannot figure it out.

Days pass. You keep replaying the game, thinking you've missed something. It must be simple, something staring you right in the face. After all, you were able to solve a five-part puzzle that someone with a physics degree would have trouble even contemplating.

Weeks pass. You know the entire game up to that point backwards and forwards. You've done it blindfolded. Clumps of your hair are matted to your hands, the remaining strands in hectic piles around your computer. You haven't slept since you can last remember eating.

Finally, after many computer beatings, you swap your soul for the answer. "Oh, why didn't I think of that?" you exclaim as you slap yourself upside the head, unaware you just caused your last remaining piece of hair to topple and join the others. As you begin entering the solution, you collapse from sheer and utter exhaustion.

Every month, this column will feature a game in the adventure genre. From text-only to text and graphic to graphic-only to action adventures, it will focus on specific games in each subject, describing it briefly and then listing a variety of hints for the most commonly asked questions. The hints will be just that: little nudges to keep your sanity. They will not be straight-out solutions. You won't get any answers handed to you here! There's no substitute for the feeling of solving a puzzle on your own, and the hints won't take that away from you.

Next issue, we will be taking a look at Infocom's *The Lurking Horror*, available on both the ST and 8-bit computers. It's almost two years old but still remains one of my favorites (then again, most of the Infocom adventures are my favorites). It can be purchased for as low as \$14.95 in each format.

If you have any questions, please feel free to write me at P.O. Box 1853, North Springfield, VA 22151. Or, if you have a modem, you can find me roaming around message base two (dedicated to adventure help) on Merlin's Litterbox at (703) 250-7303. It's free and supports 300 to 9600 (HST) baud rates. If it's long distance for you and you don't have PC Pursuit, call up a local FoReM BBS and have them route the message to Merlin's Litterbox, FNET node 146.

Q. What is an adventure game?

A. When I was in fifth grade, I imagined myself aboard a giant spaceship. Every day after lunch I moved the loose brick no one knew existed, punched in the secret code behind it, and boarded, wondering where the spaceship would take me next. The fact that other kids entered my chalk-outlined ship made no difference as I was in an alternate universe.

We've all had similar episodes of "let's pretend." All of these I consider adventure games. The basic plot might be looking for treasure, solving a murder, or just living life. The backdrop may be at a carnival, a haunted house, or your backyard. The character you play could be specific (Sherlock Holmes, Robin Hood) or general (a policeman, a magician) or even yourself. In all, you are placed into a situation with a goal in mind.

I don't consider the fantasy, Role-Playing, Dungeons and Dragons-type game an adventure. While it is to a point, too many extraneous variables prevent it from being what I view a true adventure game.

Q. What kind of adventure game is *The Lurking Horror*, the game to be featured next issue?

A. Text-only. Much like reading a book with you as the main character, it is, in my opinion, the best type of adventure because it allows you to use your imagination so much more than if there were a picture onscreen. Commands are basically entered in a simple verb-noun format ("PET MOOSE") with more advanced parsers allowing a greater flexibility ("ASK THE MOOSE IF HE WANTS TO SLURP THE CHOCOLATE MOUSSE FOR BREAKFAST, LUNCH, DINNER, OR JUST TO WRAP IT UP AND TAKE IT HOME IN A BEIGE MOOSIE BAG"). The standard two-word sentence should be enough, though.

Some of these adventure games contain objects such as newspaper clippings, keys, and pages from diaries in the packaging to enhance the realism of the game (as well as deterring pirating). Other games may add music and sound effects. Still others may add a few graphic screens to have something to look at while playing the game. For all intents and purposes, however, all of these games are text-only.

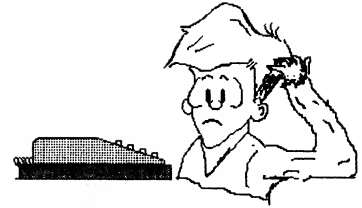
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# Is This Really Progress?

## The Dark Side of the Computer Revolution

by John Barnes

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### Computers Are Everywhere.

The lonely savants who gave birth to the programmable digital computer around 50 years ago could hardly have foreseen that one day there would be millions of them cluttering up American offices and households. Twenty years ago other prophets could get a free dinner by speculating on the many ways that these marvelous servants would lift drudgery from our shoulders and allow us to enjoy a better life. Others, like Arthur C. Clarke, could invent machines with a mind of their own like HAL in the movie *2001*.

There certainly has been a "Computer Revolution." These things pervade our entire society. Children in schools, drivers behind the wheels of their automobiles, white collar wage slaves, all are at the mercy of these machines.

The present seems like as good a time as any to take stock, to see whether we are realizing our dreams or our nightmares.

**Wheel Spinning.** People who spit out version after version of a page on a laser printer remind me of medieval monks toiling in their scriptoria. It is all too common to spend an hour or more getting it "just right." Is the message really that important? Or is the medium the message? Why can't the words stand by themselves? Do we really need the kind of glitz and sparkle we get on the TV screen?

Multiply this kind of wheel spinning by the number of computers on hand and you can see why managers are frustrated

because productivity is not climbing as fast as they think it should.

Each new "labor-saving" device brings with it a learning curve. Each learning curve is accompanied by a "forgetting curve" because the human brain can retain only so much trivia.

### The Electronic Sweat Shop.

The appetites of our desktop monsters are insatiable. They need to be fed data at an incredible rate. Some geniuses have even come up with ways to measure productivity by counting keystrokes. Can piece work labor rates be far behind? Secretaries seem to spend just as much time typing as they ever did. Now they simply produce more drafts to satisfy the indecisiveness of their picky bosses.

The amount of time an airline reservation clerk spends on a call is nicely calibrated to fill seats without giving helpful hints about fares and routes. Lawyers can present their clients with nice little computerized diaries to show just how fast the meter runs.

### Atrophy and the Intellect.

As computer power replaces brain-power, the human intellect begins to lose its edge.

The degree to which intelligent people turn to computers to answer questions that could benefit from the application of a little common sense is unbelievable. Do our engineers really believe their models when they give themselves five percent safety margins in designing spacecraft? Do they seriously believe that they can write

100 billion lines of error-free code to fend off a cloud of Russian missiles?

Will "smart weapons" work when the weather is too wet, cold, or hot? Or when the user can't read the manual?

Why learn differential equations or integral calculus when the machine will crank it out for you? So what if you don't understand the algorithm, it must be right, it's on the computer. If the calculations that are used to estimate the "bottom line" for the next quarter or the next takeover bid are unduly simplistic, no one knows or cares.

The loss of intellectual skills in this area is serious. Too few people do calculations in their heads or use insight any more.

This extends into the world of phantasy as well. Does the clash of battle in a computer simulation really bring forth images of the same quality as those we find in a good book? Would anyone respond to H. G. Wells' *War of the Worlds* on a computer screen? Or will the mind pictures we create when we read come to resemble the tacky animated cartoons that video game authors present us with? Will we need real artists when almost anyone can use a painting program?

**The Electronic Town Meeting.** You don't have to spend much time on an "information service" to see that the nerds have become very vocal. In person-to-person conversation, you can just ignore them. On a bulletin board you have to hear their mes-



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sage before you can get on to the next one, which just might contain some real information.

It seems there really is a psychic benefit in unburdening yourself to someone who has to listen. Or is this rambling itself the beginning of psychosis?

There is, however, no doubt that these electronic town meetings can spread information quickly. Bug reports, pirated versions, news, or views; all of these spread like wildfire.

**Deforestation.** Waste baskets, in-boxes, and mail boxes attest to the ability of computers to chew up trees at a fierce rate. Did you misspell a word? Hit the button and print out the document again. Wite-Out has become an endangered commodity.

Got a great new widget (or a political candidate, or a cause...) to sell? Mailing lists are cheap. Let the machine send out a few million fliers. The computer tracks how much the guy gave last time, up the ante this time around.

It would be nice to have laser printers that could work with recycled paper. Demand a look into the office of anyone who tries to sell you a paperless one.

**Automated Invasion of Privacy.** The very stupidity of computers has frustrated those who would concoct a giant database that would enslave us by cataloging our entire lives. The Pentagon can barely keep service records straight and credit card companies make their share of mistakes.

One area where we have been trapped, however, is the automated phone bank. Scarcely a night goes by that my supper is not interrupted by someone peddling a widget, cause, candidate, ....

I find this horribly intrusive. They do seem to have gotten away from asking people to talk to com-

puters, however. I could probably combat this by simply letting my answering machine do the talking, but I still have a few friends left and I don't want to offend them.

**Increasing the Entropy of the Universe.** Thermodynamics teaches us that you cannot create order without having chaos somewhere else. In making a microchip we have to take all of the dirt out of countless grains of sand, separate the silicon and the oxygen, and then arrange the silicon atoms in neat little rows. This takes a lot of energy and it creates some fairly nasty waste products.

I can't help thinking that we will soon have to go about in radiation protection suits because our machines have gobbled up the ozone layer.

**The Modern Luddite.** Just as the early days of the Industrial Revolution brought forth those who would smash machines, so has the Computer Revolution spawned a new breed who would bring our computers to their knees by infecting them with "viruses." On the other side there are whole new cadres of Beltway Bandits telling people how to make their computers more secure. Operating systems that incorporate the necessary protections have become increasingly unwieldy, requiring extra memory and greater computing overhead.

Even the recreational computer user lives in fear that the next disk that someone gives him will wipe out the contents of his precious library.

**Electronic Mail.** Electronic mail is a mixed blessing. On the one hand it is nice to get a considered answer to a question without having to harass someone by playing phone tag with them. On the other hand it takes a good bit

of time to compose these missives and to thread your way through the maze of a network. My favorite messages are those where the network "postmaster" lets you know, after a couple of hours, that your intended recipient doesn't live where you thought he did. The "postmaster" never tells you that he delivered your letter.

Of course, if your recipient was polite enough to reply, you, too, had better take the time to keep the correspondence going.

**Don't Take My Machine Away.** None of the above should be construed to mean that I want to go back to pencil and paper. Now that my typing mistakes are easy to correct I find that I write far more than I did before. Now that my thesaurus is only a mouse click away I find that I express myself better than before.

Indeed, I would like a computer that can truly do more than one thing at a time. Perhaps I should even buy a bigger house to make room for all of the toys that I would like to have. I sometimes even read a book while the computer is sitting there spinning its wheels on a download or some other mundane task. I have little use for television because the screen that I control has much better stuff on it.

I also enjoy solving puzzles and the computer presents me with plenty of these. In fact, I get a few every time I try to use a new piece of software or when I try to do something different from what I did the day before.

Each of us has to make our own decision about confronting the computer revolution, whether to embrace it, reject it, or learn to live with it, dark side and all. I just hope I'm not missing something else while I am spinning my wheels in front of the keyboard.



# HEROES OF THE LANCE

## ARCADE QUEST-ARCADE TEST

Whilst twiddling thy spacebar thumbs awaiting the *Dungeonmaster* module, *Starflight*, *Pool of Radiance*, and *Ultima V*, consider employing those very digits upon thy joystick's action button in the fantasy world of Xak Tsaroth. What manner of role-playing game favors a high dexterity roll for the gamer himself? It's SSI's *Heroes of the Lance*, written by the ubiquitous U.S. Gold, and endorsed by the creators of the paper game original, TSR. The game is described as a hybrid CRPG and action game, but its real purpose is to graphically portray TSR's *Dragonlance* adventures during their exploits in the ruins of Xak Tsaroth. *Heroes of the Lance* accomplishes this with attention to detail and excellent graphics. As a role-playing/arcade effort, though, it might get the same rap you hear from people who don't like Cinemaware games: unsatisfying in its separate elements.

*Heroes of the Lance* bears a slight resemblance to Psygnosis's *Barbarian*. Movement of the on-screen character is always horizontal, but turns exist in all cardinal directions, giving Xak Tsaroth some spatial composition. A rotating compass in the lower left corner keeps track of the actual direction the party is headed. The upper two-thirds of the screen is all graphic display. Xak Tsaroth is a darkened setting of gray stone structures intermittently in shambles. It is vaguely reminiscent,

especially in the hall of busts, of the Airball mansion done transversely. The shadowy colors chosen create an effective mood. There are three levels to the city, but the bottom level, where Khisanth the dragon resides, is all sewers, like those drainpipes you explored as a kid. *Heroes of the Lance* is a 1,154K effort, easily topping the previous fantasy champion in that department, *Rings of Zillfin*, which had 900K.

The SSI/TSR connection has gotten almost as much publicity as a Nintendo release, and the faithfulness with which TSR's Advanced Dungeons and Dragons creations will be handled has been the theme of it all. To that effect, *Heroes of the Lance* is a promising first effort, especially in the artwork and abilities of the eight characters. Though only one can appear on-screen at a time, each party member is drawn as it appears in *Dragonlance* artwork, and performs as it is known to in the novels and RPG modules. Clothing, armor, weapons, and special items are all accurately portrayed; weapons and items are graphically detailed and can be dropped and picked up, as in *Dungeonmaster*. When an encounter calls for the abilities of a certain character, you select that person and he or she replaces the current character on-screen. Enough background is given in the documentation to appreciate each party member's animation, but those who have read *Dragons of Autumn Twilight* will especially enjoy the depth with which the *Heroes of the Lance* are rendered.

Encounters are usually one monster at a time, and rarely more

than two or three. There are ten types: soldiers, spectral soldiers, two sizes of dwarves, spiders, Draconians (like lizardmen), magical Draconians, trolls, wraiths, and baby dragons.

Again, the artwork is excellent, and the battle effects complement the action nicely: destroyed monsters crumble to dust or explode into iridescent smoke, spells are cast as clusters of colored diamonds, the mage staffs glow when wielded, and there are lots of digitized sounds. Best of all, everything is done tastefully, so you never get the feeling of having plunked a quarter into the latest kaleidoscopic, graphically cosmic marvel of the coin-op world.

The veteran computer role-playing gamer shouldn't expect too much of *Heroes of the Lance* from the CRPG perspective. While each character has true AD&D statistics, attributes largely remain the same throughout the game. There is no character development or levels to obtain. All 17 spells are available from the beginning. No clues or conversations or puzzles exist. Though the game may take many hours to solve, once accomplished, it can be repeated in about one hour. Still, the layout of Xak Tsaroth and the feel of *Heroes of the Lance* impart this writer's favorite aspect of fantasy games: exploration and discovery. Non-action gamers shouldn't rule *Heroes of the Lance* out automatically.

As an arcade game, *Heroes of the Lance* is even less challenging. You won't have to lube the joystick or do any wrist calisthenics to prepare for this one. Like *Dungeonmaster*, characters won't last long if





The holidays are over, the presents are unwrapped and the parties are over. I trust you all had a good time. Maybe you even got some "stuff" for your computer. I got something that is really great! It's called *R/C Areochopper*!

I'd like to deviate from my normal theme on computer graphics this month, but since I'm the Escape Artist I can do that.

## R/C Areochopper

*R/C Areochopper* is the creation of David Stern of Ambrosia Microcomputer Products, Inc. I first saw this product when it was shown at the STING user group meeting. A member who is also an R/C (Radio/Controlled) airplane hobbyist had heard about this product, got it, brought it to the meeting and really amazed everyone who saw it!

*R/C Areochopper* is a radio control flight simulator. It is NOT a regular flight simulator like Sub-Logic's *Flight Simulator*, *F-15*, *High Roller*, *Harrier Strike Mission*, *Gunship*, *Super Huey* or any others that might have come out while I was doing this list. It actually simulates flying a R/C aircraft.

For those of us who have never flown a R/C aircraft before let me explain. So how is this so different than simulating flying a regular aircraft? Well, it's the fact that your point of view in a regular simulator is from the cockpit of the aircraft. To bank to the right, you simply pull the stick to the right. In *R/C Areochopper* the point of view you receive is that of being on the ground watching the aircraft flying past you, overhead and all around.

This may sound simple enough to those who have never tried it, but in flying from this ground point of view, if the aircraft is coming toward you, pulling the stick to the right will make the aircraft bank to the left. Now that's a lot different!

The software is easy to use. Getting yourself in the air takes very little book work. The graphics are simple, but because of this, more "frames" per second can be shown and the aircraft moves just like the real thing. A shadow is always underneath to give you more depth perception. Sounds of the aircraft are also very realistic. Even wind sound is available.

*R/C Areochopper* allows you to fly not only airplanes but also helicopters. It allows several (22) different types including jet fighters and even gilders. Custom flight qualities can be achieved by modifying 131 individual parameters. This is too difficult to get into here (or maybe I just don't understand them). For those of us who aren't content to just fly (like me), Dave's program lets us bomb and launch rockets at stationary and moving targets (one of my favorite things).

Perhaps the one single feature of *R/C Areochopper* that makes it so unique is the control device that is used. It's not a regular ATARI joystick or even a mouse. No, not a special single proportional joystick either. *R/C Areochopper* uses the same transmitter box and dual joystick controls of a FUTABA R/C controller. This is achieved by plugging it into a cartridge that, in turn, plugs into the ST's cartridge port (great, one more thing for the cartridge port). The feel that this controller gives is without equal in any flying program I've seen on the ST.

*R/C Areochopper* is a great program for the R/C hobbyist who wants more practice (without expensive crashes) or the person,

By Joe Lambert

like me, that just likes flying programs. *R/C Areochopper* costs \$189. This may seem like a lot but the cost of a real R/C plane or helicopter can exceed several thousand dollars. To get this truly unique and amazing product call or write Ambrosia Microcomputer Products, Inc., Suite 371, 98 W. 63rd Street, Willowbrook, IL 60514, 312-655-0610.

## IMG Scan

I'd like to also tell you about another fantastic product that is available for the Atari ST family of computers. This product has been available for quite some time, I think for over a year, but hasn't seen a lot of national exposure because it's ST specific. What is it, you say? Well, it's an image scanner! What's an image scanner, you say? An image scanner is a device that can take an image from a piece of paper and turn it into a picture file on your computer! For folks that are into desktop publishing, this is a tool that is almost a necessity and can certainly come in handy. The scanner creates its magic by having a sensor pass over the paper "reading" the varying amounts of grey and recreating them in sequence in the picture file. The scanner is like a printer in reverse, instead of putting the image out, it reads it in.

What makes a scanner invaluable to the average desktop publisher is the fact that he doesn't have to be an artist to get art into his/her text. There is no need to rely on existing picture files to use in your creations. All that you need is a piece of art on some paper that can go through the scanner.

So why don't you and all of your friends have scanners already if they're so darn nifty? Most scanners cost in excess of \$1000. But wait, the product I'm talking about



is called IMG SCAN by SEYMOR-RADIX, and it can be had for less than \$90. How can this be? The IMG SCAN scanner uses your printer as the part of the scanner that pulls the paper through and moves the optical scanner across it. All that is needed is the optical scanner and the software to make it happen.

This is exactly what SEYMOR-RADIX provides with the IMG SCAN package. You get a little grey box with two long black wires attached, a disk, a mounting kit and a 29-page owner's manual.

The little box is a cartridge, the long wires are actually optic fibers. The mounting kit consists of two metal clips. One clip is attached to your printer's print head the other clip holds the wires. When the two clips are hooked together and properly adjusted to be at a right angle to the paper and as close as it can be, the scanner is ready for action.

Sometimes, because of all the different types of printer makes and models, it's hard to get the above situation exactly right. The earlier versions of IMG SCAN simply gave you a few pieces of metallic tape and said "go for it." A new mounting kit looks nicer and makes converting your printer to a scanner and back again easier, but the old piece of tape may work best in getting better results.

The GEM-based software is very nice with plenty of options. It passes the Lambert Test of good software--no reading of documentation is needed to figure it out. Scanned images can be saved as DEGAS or NEO files, as raw data to be manipulated at a later time, and best of all for the DTP crowd, as IMG files. IMG files can be saved under several different DPI (dots per inch) settings, but be prepared for a long wait when doing IMG scans.

The manual is good, not too little and not too much. It has a section on troubleshooting any problems. It also has a nice "hints" chapter.

I've had IMG SCAN set up on two different printers and have gotten good results with a minimum amount of hassle. I would give the nod to IMG SCAN for any graphics junkies like myself because it's loads of fun scanning photos/art and enhancing it with DEGAS or NEO-chrome to create new picture files. Also the DTP people out there would find IMG SCAN to be a great low cost solution to any scanner needs. A \$1,000 scanner might get consistently better results, but IMG SCAN gives guy's like me (with more time than money) a way to get in there and scan with the best of them.

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## FIGHT NIGHT

*Review by Joe Pietrafesa*

Ladies and gentlemen, this is the main event. There is some exciting boxing on the way, and you are the major challenger. It's a tough road to get to the top, but you might make it. It's a great night for a fight—a *Fight Night*.

*Fight Night*, first introduced in 1986, is another Accolade, Inc. disk which has become a cartridge for the Atari XE Game System.

The first screen features Nancy and Ronnie Reagan stepping out to watch a little fight and also shows the menu options. On the left, the option "Info" explains the information about the game, like how to restart a game, turn the music on and off, and how to pause or unpause the game. By landing on "Fight Night," one is given the five sub-categories of the game which, in fact, are the five games that can be played. They are as follows.

**Main Event:** This is where your main challenge is. There are five vicious contenders: Dip Stick, Kid Kastro, Ho Hum, British Bulldog, and Bronx Bomber (the champ). You start with the first one, and you fight until you get beaten up.

You fight your opponent with several different moves, such as throwing jabs, throwing body blows, dodging punches, and putting your guard up and down. Your adversary also has the same

moves you have, and most are just as quick and cunning as you are. Sometimes the computer dozes off, and the computer player hesitates before he makes his next move. Then you should take advantage of the moment and quickly punch him.

The screen displays point values. You have three rounds (three minutes each) either to score more points or to knock out your opponent. If you can beat the Bronx Bomber, you will be champ.

**Boxing Construction:** Here's your chance to create the ultimate boxer by combining various characteristics from each of the six boxers represented in the game. You can save your characters if you have a disk drive (if you don't, they only will be saved as long as you keep the computer on).

**Training:** This part of the simulation helps you learn how to maneuver the joystick to acquire the feel of all the moves that you can perform. I would suggest playing in this mode before actually entering the Main Event.

**Sparring:** This helps you get the feel of the actual boxing match. You can have any two of the boxers box a simulation fight. You can watch to see what they do.

**Tournament:** Here you can play a tournament with all of the boxers. This tournament has a one loss elimination to finally get to the end and see who is the best boxer.

*Fight Night* is an enjoyable and challenging game. From the beginning it was quite difficult for me to control the boxers' movements. After about ten minutes of sparring with the Bronx Bomber, I

thought I was ready for the challenge. Using the tips in the game manual, I was able to get to the Bronx Bomber, but to no avail. I wasn't able to be champion. That's okay, however. With more training and practice, I probably will be able to become *Fight Night* champ.

So, get your ringside seats and watch out for flying punches because it's always action packed when you're playing *Fight Night*.

## BATTLEZONE

*Too Little Too Late*  
*Review by Jerry Drake*

Back in the early days of video games, Atari released a little 3-D-gem-of-a-game called BATTLEZONE. It was state of the art for sure and may have been the first 3-D game ever. The actual console you played the game on was unique also because you would look through a scope like that of a submarine. The controls added to the unique feel of the game because they consisted of two joysticks that moved only up and down. The player would have first-person perspective of the screen and, with the joysticks, could rotate left or right and move either forward or backward. Vector graphics were used in this game as well.

After giving us this whole unique feel, Atari was destined to have a hit game, and it was. Players used to have to wait in line to get a try at this "experience in 3-D." After spending all this time on such a unique look, I always felt Atari proved an age old philosophy: "You can't judge a book by

its cover." This game was boring—all flash and no substance.

The game had a simple plot. The year is 1999. Power hungry rebels have sent out a huge fleet of robot-war machines. The only defensive weapon against these adversaries is a vintage tank. It's just you against a countless array of tanks, saucers and missiles.

That was it. One tank would appear at a time, and, if you didn't shoot it right away, it would shoot you. If it appeared behind you, unless you were exceptional at the game, you would be killed. Then the missiles would come zig-zagging at you, and, if you didn't shoot them immediately, you would die. The game merely was a test of reflexes, not logic. It could just as easily have been a cowboy "fastest-on-the-draw" game.

Even with all its faults, *Battlezone* was still great for the time. Its only competitors were stale pinball machines and games like *Asteroids*. If this game had been

released for the Atari computers at that time, it would have been superior.

However, Atari must have put this cartridge on the back-burner until now. It must have been a quick we-have-to-get-something-on-the-market decision to release this. The biggest fault of this game is that it is true to the arcade game. The graphics are almost as good, and the playability is on a par. But, as with the arcade version, *Battlezone* is still boring.

If Atari's only reason for giving us the same drab green graphics of the arcade version was to preserve the look of the original, or, worse yet, because they didn't want to invest the time and energy into updating this product, then the company had better rethink its philosophy. Otherwise Atari is destined to ruin any chance they have of staying alive with their XE Game machine. With the new Nintendo game system out, with such cartridges as *Double Dragon* and

other arcade hits, Atari won't stand a chance.

*Battlezone* is a weak product to release, considering Atari's desperate need of a hit. If the company would return to its old form and put out cartridges of true "arcade hits," they could get some interest back into their system. Otherwise people are going to look at the Atari as an ancient game machine, like the ancient games it releases.

Aside from that, if you loved *Battlezone* at the arcade and miss playing it there, you're in for a treat here, because Atari is true to the original. The only thing missing is the scope you look into and the two controllers. If, however, you are looking for something truly enjoyable featuring color, then check out some of Atari's older gems, such as *Donkey Kong*, *Donkey Kong Jr.*, *Pole Position*, or most other cartridges they released when Atari was the true king of gaming.

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# Hollywood Hijinx

## A Zany Treasure Hunt

by Al Williams

Your fabulously wealthy Aunt Hildegard recently passed away, and you attended her funeral this morning. According to her will, you will inherit her estate, which includes the house Hildebud, the former home of your aunt and your Uncle Buddy. Buddy, a Hollywood director, producer, and actor for his own Buddy Burbank Studios, died sometime previously while viewing what some people thought might have been the greatest film of his career, *A Corpse Line*. Among his other highly successful gems were *Attack of the Killer Rutabagas* and *Bees Do It*.

To prove yourself worthy of the house and wealth, you must, according to a letter that you got from your Aunt Hildy, find ten "treasures" which are somewhere about the house and grounds. So, here you are being dropped off in front of a dark house with a letter from your Aunt Hildy, a photo of your Uncle Buddy, and a flashlight. You have until 9 a.m. tomorrow morning to find the ten "treasures" and to win all, or (best not to think of this) lose all.

So begins *Hollywood Hijinx* from Infocom. The package that you get includes a copy of *Tinsel World*, an *Enquirer*-like tabloid, with stories about a three-headed child who soon will appear as the star of a TV series about an alien adopted by a Beverly Hills couple, and another concerning an 84-year-old grandfather who is terrorized by a psychotic gerbil his grandchildren gave him for his birthday. Amidst these are the true meat of the tabloid—stories about Uncle Buddy and Aunt Hildegard and pictures and some background of the other

characters in the adventure. In addition to Buddy and Hildy, you are provided pictures of some of your Uncle's most famous stars such as Buck Palace, the fighting mailman, lovely Conchita Carlough and the famous Dorothy LaFlank (what? you haven't heard of her?); and clues. You are given clues for puzzles that don't even exist (nothing like a few red herrings, eh!). A few extra stories are thrown in for your education and amusement. The Harvard Lampoon should do so well!

Also included in the package are a letter, a lucky palm tree swizzle stick, a single density disk with programming on both sides, a little booklet which informs you of other adventures that you may wish to embark upon, and a photo of a smiling Uncle Buddy, dyed hair, eyebrows, mustache and all.

*Hollywood Hijinx* is another in a line of text adventures from Infocom, which is, indeed, enough of a recommendation for anyone who is interested in text adventures. The parser, as always, is so human that at times you feel you are talking to a person, not a machine. And, as in so many Infocom stories, there is a vein of humor which really makes the stories a joy. In *Hijinx*, there is a sense of slap-stick humor which is very reminiscent of some of the zanier Hollywood movies. For example, while walking toward the house, you encounter a black cat who "...scurries across the path, heading toward Johnny Carson's house." The doorbell—the script proudly admits—was once rung by Sonny Tufts, an actual star whom many critics consider to be one of

the worst film actors who ever lived. In this game even the doorbells are funny. After pressing the button, you are treated to the musical theme from a number of Uncle Buddy's greatest hits, including *Chinese Chop Suey* and *Buddy Burbank's Three Minute Hollywood Workout*.

To make the whole story even more interesting, Infocom never anywhere manages to get themselves pinned down to who or what you are. You are referred to as Kiddo, as Pumpkin, or as Sweetie, never by anything that might refer to your sex, or age, or any clue about you. To leave the "you" character so open and undefined so as to allow you to place yourself in that role so easily, must have taken a lot of time, thought, and trouble. But that is the way Infocom works. They do everything so well that they make it look easy and effortless.

The prose is very crisp and clever. The variations that occur on each and every round of the story make the adventure seem fresh and new every time that you go through the story line, or retrace your steps. Characters seem to come and go as they please, and there is nothing that you can do to stop them. Your wits are strained to the limits—and sometimes beyond—to solve the puzzles that must be solved to get to the next further step.

If you haven't had a chance to try this adventure, and are partial to text adventures, this one is worth both your time and your money.

The software requires the Atari XL/XE series computer, 48K minimum, and either the 810 or the 1050 Disk Drive. The second disk drive is very handy for "saves," and in this adventure, a printer and the use of the "script" command can be a real life saver.

[Infocom, Inc., 125 Cambridge Park Drive, Cambridge, MA 02140.]

# ATARI'S SMALL MIRACLES

by Joseph Russek

## GT1A TEST

This program allows for modes 9, 10, and 11. In all three it draws a rainbow of color bars. Nine provides colors from blues to white. Ten, which covers only half the screen, contains all the major colors. Eleven goes from yellow to yellow.

```
10 REM GTIA TEST
80 ? "MODE (9-11)";INPUT MODE:LIM=15:GRAPHICS
MODE
90 IF MODE=9 THEN POKE 712,128:GOTO 115
95 IF MODE=11 THEN POKE 712,10:GOTO 115
100 FOR I=704 TO 712:READ R:POKE I,R*16+8:NEXT
I:LIM=8
105 DATA -5,12,13,14,15,1,2,3,4
115 FOR X=1 TO LIM
120 COLOR X:POKE 765,X:PLOT X*4+5,0:DRAWTO
X*4+5,159:PLOT X*4+1,159:POSITION X*4+1,0:XIO
18,*6,0,0,"S:".NEXT X
150 GOTO 150
```

## GT1A 2

This draws 120 color swatches which fill up the entire screen.

```
100 GRAPHICS 11:POKE 712,0:POKE 559,0
110 DL=PEEK(560)+PEEK(561)*256+4
120 FOR X=0 TO 79:COLOR INT(X/5)
130 PLOT X,0:DRAWTO X,191:NEXT X
140 COLOR 0:FOR X=0 TO 15:PLOT X*5,0
150 DRAWTO X*5,191:NEXT X
160 FOR X=0 TO 7:FOR Y=20 TO 23
170 PLOT 0,X*24+Y:DRAWTO 79,X*24+Y
180 NEXT Y:NEXT X
190 FOR X=23 TO 71 STEP 24
200 POKE DL+X,143:NEXT X
210 FOR X=121 TO 190 STEP 24
220 POKE DL+X,143:NEXT X
230 POKE 512,128:POKE 513,6:M=1663
240 M=M+1:READ D:IF D=999 THEN 260
250 POKE M,D:GOTO 240
260 POKE DL+95,207:POKE 54286,192
270 POKE 559,34:GOTO 270
300 DATA 216,72,173,153,6,24,105,2
```

```
310 DATA 141,10,212,141,26,208,201
320 DATA 14,208,2,169,0,141,153,6
330 DATA 104,64,0,999
```

## GT1A 3

From the top of the screen, slowly red, blue, green, and black zig-zags fill the entire space.

```
10 REM GRAPHICS 11 GTIA DEMO
20 REM
30 GRAPHICS 11
40 CI=1:C=0:SETCOLOR 4,0,2
50 FOR Y=0 TO 191
60 FOR X=0 TO 79
70 C=C+1:IF C=16 THEN C=0
80 COLOR C
90 PLOT X,Y
100 NEXT X
110 LC=LC+1:IF LC=16 THEN CI=-CI:LC=1
120 C=C+CI:IF C=16 THEN C=0
130 NEXT Y
140 GOTO 140
```

## GT1A 4

Five color vertical cones appear. Each forms a rainbow--gray at the top and yellow are the bottom.

```
100 GRAPHICS 9:POKE 712,0:POKE 559,0
110 DL=PEEK(560)+PEEK(561)*256+4
120 FOR X=0 TO 79:COLOR X
130 PLOT X,0:DRAWTO X,191:NEXT X
140 FOR X=11 TO 83 STEP 12
150 POKE DL+X,143:NEXT X
160 FOR X=109 TO 190 STEP 12
170 POKE DL+X,143:NEXT X
180 POKE 512,128:POKE 513,6:M=1663
190 M=M+1:READ D:IF D=999 THEN 210
200 POKE M,D:GOTO 190
210 POKE DL+95,207:POKE 54286,192
220 POKE 559,34:GOTO 220
300 DATA 216,72,173,153,6,141,10,212
310 DATA 24,105,16,141,26,208,201,240
320 DATA 208,2,169,0,141,153,6,104
330 DATA 64,0,999
```

# THE PERUVIAN CONNECTION II

*by Augusto Rojo*

*[Ed. Note: Thanks to Mr. Rojo once again for his reviews of software currently being sold in the United Kingdom. As before, I have "translated" some of Mr. Rojo's very good English to make it clearer to our American readers. Whenever possible, I have retained the exact wording and syntax of the original. All prices are given in British pounds (and US dollars). -Len P.]*

**ZYBEX.** Have you ever seen "Sided Arms" in the arcade? Well, this is a similar game for one or two players. Rinser and Cassalana are two rebels who want to escape from Death Row and collect teleport crystals that will permit them to penetrate a new world. The final goal is to take the Zybex crystal. With it you can escape your prison.

Each player can use the color of his preference because he can select it with a joystick. The different levels are caverns like in *Vanguard*. There are many kinds of enemies, each with different movements. Generally they attack in waves, but at the end of the cavern is a big monster who is very resistant to a player's fire. If you destroy this enemy, you can take one crystal that permits you to go to a different level. The levels aren't in order of difficulty. In my case, the second is more difficult than the fifth.

The names of these levels are Arcturus, Beros, Centaurus, Rictus, Skorpis, Titan, Antares, Bæus, Procyon, Necros, Enceladus, and Diablos. You can hop from level 3 to 11, for example, but there are four more levels that are restricted. You need some number of teleport crystals to reach them. There the game is more difficult because of the fast action.

In the beginning you have three lives, but in some encounters with the enemies, you can take more. There are five weapons, all automatic because they fire at constant speed. When you begin you only have one Orbit. This weapon delivers an intermittent pulse of bullets. When you hit some enemies, they convert to symbols of weapons, lives or points; if you take the symbol of your actual weapon, then it becomes more powerful.

The other weapons are the Rail Gun (a long and slow horizontal bar that destroys all it touches); the 8-Way (very effective in the vertical waves); the Pulse (a light weapon that requires two or more hits to destroy an enemy); and the Wall (a bigger but weaker weapon).

I like this game for many reasons. The graphics and sound are superb. Mr. Jobling (the author) uses many levels of the same color in the Graphics 15 resolution, and this shadow technique permits some perspective illusion. The backgrounds of the caverns

are adequate and different. The jingle and the sound effects are okay also. I think that the author uses one technique that I don't know to put many "sprites" (more than eight pixels and three or four tones of color) in the same horizontal line. With some exceptions you can play this game many times without annoyance, especially in the two-player mode.

*Zeppelin Games, 1988, Cassette, 64K, 2.99 pounds (\$5.08).*

**TRANSMUTTER.** It's a classical horizontal scrolling game similar to Nintendo's "Gradius." You are the captain of the Transmutter ship far in the future. In this time humans live in the stars and have forgotten much of their past. Your mission is to return to the center of the earth.

The caverns that carry you to your goal contain plenty of automatic defenses that you can't deactivate. For this reason you need to use your reflex weapon. The energy for it is a function of the destruction that you can make in the defenses. First, your fire is restricted to only four shots, and your speed is very low. If you can destroy some enemy ships or batteries, your level of power increases, and one icon on the bottom of the screen is activated.

The extra features are speed, double fire, missile, laser, and shield. The backgrounds are good, but there are few colors. After one pass across the caverns, you confront a big ship. If you win you have a bonus stage. Then you need to go across a labyrinth to pass to a second level. I don't know if there are many levels because I can't pass the second, and the information in the cassette is poor.

The low point of this game is the speed. It's very, very slow. For this reason the game can be too easy. Luckily, the waves of enemies and fortresses are put in random order, and so the game isn't tedious.

*Codemasters, 1988, Cassette, 64K, 1.99 pounds (\$3.38)*



**STARQUAKE.** One unstable planet emerges from a black hole somewhere at the edge of the galaxy. If the core of this planet is not rebuilt, it will explode causing the whole universe to go KABOOM! A biologically-operated being, BLOB, is chosen for this mission. It needs to use all its resources to take the critical elements in any part of the planet and put them in the core of the planet.

The power of the BLOB has three parts. The more basic is the live power. If it's zero, you lose a life. Another is "cloud power." With it you make a little cloud to jump in, but this cloud vanishes in a few seconds. The last power is the power of fire. This is very important because in the dungeons of the planet are many enemies who absorb your life energy.

In some screens you can use a little ship, but in many cases you need to lose it in order to go to a different zone. Not all the ways are free. Some have a teleport cabin with a password, and you need to have it to use it.

This game is a good mix of arcade and strategy. There are 255 screens all in hi-res, and the backgrounds have the quality of "Barbarian" for the ST. The action is fast and furious, and you need to make maps because it's very easy to lose your way. Also, the "critical elements"—the passwords and the recharging units—are random, and it is very difficult to get to the goal (generally I only finish 20–25% of the game). *Starquake* is a good game for long-time play.

*Bubblebus*, 1987, Disk, 12.95 pounds (\$22.02).

**HENRY'S HOUSE.** Hey, you old and venerable players, remember the classic 8-bit arcade games (e.g. *Miner 2049er* or *Jumpman*)? Well, this is a close cousin—a "take-and-run" or "platform game."

You have the role of a little prince that by error takes a shrinking formula of his father's. To get the antidote you need to go to the basement. But you are in the closet and need to go across the bathroom, the dining room, and finally the basement.

Many of the objects in the home can kill you if they touch you, and you need to hop and hop to take the key and go out of the room. Of course, you don't have any weapon and only can use your reflexes and intellect to go to the basement.

This is a tape game, and for this reason I suppose that the programmer put only eight screens in it. It is a short game for the expert.

It has two strong points. The graphics are very good. Probably the programmer used the new English technique of "horizontal interrupts" and put

many colors on the screen. Also, there are some tricks in the game that you need face (the water and brush in the bathroom, for example). The sound is also adequate. If only the game had more screens...

*Mastertronic*, 1987, Cassette, 1.99 pounds (\$3.38)

**PANTHER.** This is a cross between *Blue Max 2001* and *Choplifter*. In this case you are the pilot of "The Panther," a spaceship with the mission to rescue the survivors of a nuclear war.

Your trip begins in the desert and crosses the city and the seas. The goal is a spaceport. You need to rescue some men and fight with waves of enemy ships.

Your offensive weapon is the laser, but you also have radar that indicates the proximity of the enemy ships.

The game uses diagonal scrolling similar to *Blue Max*, and the scenes are well drawn and have good sound.

*Mastertronic*, 1987, Cassette, 1.99 pounds, (\$3.38).



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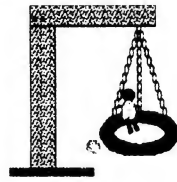
*The Magic Playground* is an animated, interactive children's story. Essentially, it's a story. There are interactive parts to the program, and they will probably appeal to the young children in the targeted age group (2-8 years), but those interactive parts are relatively straight-forward and brief.

The story involves a child's travels across a typical playground, one that offers occasional moments of magic.

The child finds a sandbox, swing, slide, water fountain.... All the common equipment. There are times, however, when a flashing face appears on the screen. Click on that face and the ordinary playground becomes a place for magic. Perhaps that magic will be a flight through the sky. Or maybe a somersault while on the seesaw.

The words to the story are on the lower part of the screen. The story itself is pleasant and comfortable. There is no real conflict. The story is simply an easily undertaken travel to the different places and activities on that playground. Mix water in the sandbox. Go skateboarding.

Although there is good use of music and sound effects, the graphics for this story are stark and simple. Often little more than stick figures, the black-on-white illustrations do little to entice an adult. The animation flickers. There is no use of color.



# The Magic Playground

A Children's Interactive Story  
*Review by Bill Moes*

When I first took a look at *The Magic Playground*, I was disappointed. Was this really worth a commercial release?

I then encouraged my eight-year-old daughter to take a look. She offered a different perspective: "Look at this! This is cool, Dad. I like this. Where's the left arrow key? Oh, I found it. I'm filling the sandbox. That's neat. Oh, my gosh!" And she wanted to play again.

My second-grader was able to read the story without difficulty and, as evidenced by her comments, did enjoy it. Very young children will, of course, need adult help for the story and the activities. Children any older than about second grade will probably not find the story of much interest.

The story can be completed in about 15-20 minutes if the child takes the time to explore and participate in the activities. There are about 25-30 different screens, so someone going through it for speed could finish it off in a few minutes.

In addition to the story and interactive activities, the program offers a careful introduction to the computer. Children will need to explore and use the mouse, the

<RETURN> key, the keypad, function keys, as well as another familiar old friend ("any key").

*The Magic Playground* was written by Jaimie and Jesse Smith using GFA BASIC. It runs in both medium and high resolution. Purchasers will also receive another program by these authors, the public domain *Nursery*.

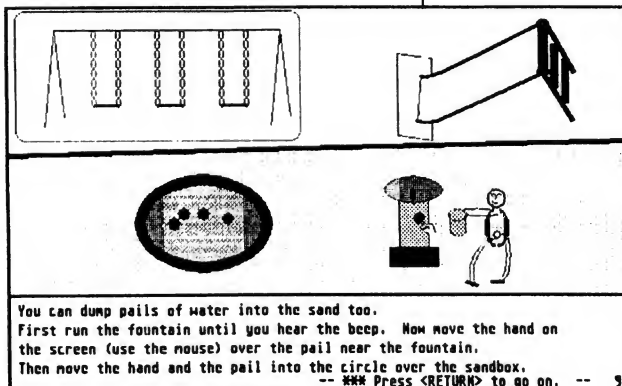
*Nursery* offers a collection of activities for preschoolers. The activities are for both learning and entertainment. Again, the illustrations are black drawings on a white screen.

*The Magic Playground* (\$20) is a simple and comfortable introduction to computer use for very young children. The story is friendly and the interactive qualities offer children the chance to participate in the story, something they cannot do with a book.

The graphics appear very basic, but, in their favor, those basic graphics will do little to distract a child from the story or the activities. I would have preferred colorful illustrations and a price somewhat lower.

This software could prove useful to families with very young children, preschools and day-care centers, and very early primary grade classrooms. We may not be at recess with Houdini, but, in its own personal way, this playground does have its touch of magic.

[*Water Fountain Software, 13 E. 17 St., 3rd Floor, NY, NY 10003*]



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- 155 DGDB - "The Great German Videogame" - excellent game (JOYSTICK/COLOR).
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- 315 Two flexible database programs, a nice working PD spreadsheet, more ...
- 334 JILCAD 2D - Fully working CAD program! Powerful... (DBL/MEG/best in MONO).
- 336 AIM 2.3 - Digital Image Processor - let's you do amazing things with pictures! (MEG).
- 337 Cyberscape Animation - The BEST ST graphics and sound demo (DBL/MEG/COLOR).
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- 362 Amazing digitized song! (MEG/DBL).
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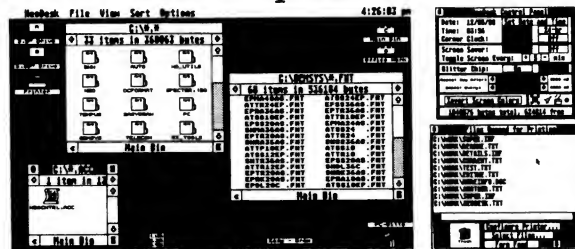
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# NOVATARI XL/XE ICD LIBRARY

## Demo Disks

- 1: Miscellaneous
- 2: Movie Maker Clips
- 3: Heavy Metal Art
- 4: Miscellaneous
- 5: Desktop DOS + Demos
- 6: VizPics
- 7: Mandelbrot fractal graphics
- 8: Hitchhiker's Guide to the Galaxy
- 9: Wizard of OZ
- 10: Adventurers Companion

## Educational Programs

- 1: Mathematics
- 2: Primary Language
- 3: Teachers' Toolbox
- 4: Word Builder 1.0
- 5: Animated stories
- 6: Geography
- 7: Bio+Chem with touch typing
- 8: Basic Math
- 9: Higher Math and Language
- 10: The Cell
- 11: Spelling Bee
- 12: Math Game
- 13: WORD GAMES

## Games

- 1: Text Adventures I
- 2: Gambling
- 3: Simulations
- 4: Mazes
- 5: Parlour Games
- 6: Graphics
- 7: Action! Games
- 8: Arcade Look-A-Likes
- 9: Text Adventures II
- 10: Text Adventures III
- 11: Surf's Up
- 12: Ski King
- 13: 20 BASIC Games
- 14: Super Quiz A & B
- 15: Two Graphic Adventure Games
- 16: Space Lords
- 17: Pinball Games

- 18: Machine Language Games
- 19: Dandy Dungeon
- 20: Holdem Poker
- 21: Americas Cup
- 22: Boulder Dash Const. Set
- 23: Wheel of Fortune & Backgammon
- 24: **Yankee 21** (Blackjack game)
- 25: **Card Games** (Whist, Crazy8, Euchre, Solitaire, Canfield)
- 26: **Yoyages Through Time**, by David Castell
- 27: **Space Games** (Duelists, Flash Gordon, Gauntlet, Maltass, Star Crystal)

## Language Disks

- 1: Fig-Forth
- 2: ACTION! source codes (cf. GAMES 7)
- 3: ACTION! Graphic Demos
- 4: ACTION! Utility Programs
- 5: ACTION! Modules #1
- 6: ACTION! Modules #2
- 7: BASIC XL-REF Base
- 8: ACTION! Modules #3
- 9: Kermit telecom
- 10: Turbo Basic
- 11: Pascal Sampler
- 12: Searcher XL Turbo
- 13: Turbo Basic for 400/800
- 14: C Language
- 15: Turbo Basic Documentation

## Music

- 1: TV/MOVIE Themes
- 2: ROCK Songs
- 3: JAZZ Songs
- 4: BASIC music w/animation
- 5: Ams Player:12 Rock Songs
- 6: Ams Player:14 Movie/Video

- 7: Ams Player:16 Oldies
- 8: Ams Player:18 Classics
- 9: Ram130 AMS Beetles' Songs
- 10: Music Composer Songs
- 11: Pokey Player
- 12: Music Major

## Utilities

- 1: MISC introduction
- 2: Printers
- 3: DOS 2.5
- 4: Directory & Label Printer
- 5: Graphics Trilogy
- 6: Copymate XE
- 7: SCOPY sector copier
- 8: Translator Disk
- 9: 256K Upgrade
- 10: Daisy-Dot NLQ
- 11: Dos 2.6
- 12: Machdos 2.1
- 13: Print Shop Editor
- 14: Easy Find
- 15: Print Shop Icons
- 16: Textpro 1.1
- 17: Print Shop Icons
- 18: Touch Edit
- 19: DOS 4.0
- 20: Graphics
- 21: 130XE upgrades + Utilities
- 22: HI-RES 130 (graphics)
- 23: Rainbow DOS
- 24: Font Master
- 25: 3-D CAD
- 26: Adelaide Symbolic Disassembler
- 27: DB's & Spreadsheet
- 28: Graphic Utilities & Pics
- 29: String Magic
- 30: Print Shop Icons
- 31: Hacker's Toolkit
- 32: Weekly Scheduler
- 33: Textpro 2.5r (telecom)
- 34: Print Shop Utility
- 35: Monitor/Debugger
- 36: Diet & Nutrition
- 37: General Ledger
- 38: Super Copiers

- 39: AtariWriter Printer Drivers
- 40: Signmaker
- 41: Billboard Maker
- 42: Daisy Dot II
- 43: Graphics Art Department
- 44: **ARC-ALF** Compression utilities.

## Telecommunications

- 1: 850 Interface
- 2: 835/1030 Modem
- 3: MPP Modem
- 4: Amodem 7.2
- \*5: Chameleon Terminal Emulator \*Note: this is a two disk set. Order 5A and 5B.
- 6: 1030&850 Express (3.0 & 2.1)
- 7: Data Comm
- 8: AMIS XM10 BBS program
- 9: Amodem 7.4 + Rverter
- 10: FOREM XE BBS
- 11: **Amodem V7.52**

## (New Disks in Bold)

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Any user group librarians who are willing to trade library disks write or call Roy Brooks, 4020 Travis Parkway, Annadale, VA. 22003, phone (703) 750-0146. We trade with groups all over the world.



# WAACE CLUB CORNER

This space is made available to WAACE member clubs for their use in publicizing activities. Material for this column must be in the hands of the Clubs Editor by the 10th of each month. Send copy to John Barnes, 7710 Chatham Rd, Chevy Chase, MD 20815. Material can also be uploaded to the ARMUDIC BBS.

## NOVATARI

Northern Virginia Atari Users' Group

### Officers for 1989:

President:.....Bonnie Little.....(703) 444-2419  
ST Vice President:..Ed Seward.....(703) 573-3044  
8bit Vice president: Nina Kraucunas.....(703) 250-3572  
Secretary:.....Edmund Bedsworth(703) 536-5958  
Treasurer:.....Gary Purinton.....(703) 476-8391

**New Members:** Dues are \$20/year/family which includes a subscription to CURRENT NOTES and access to more activities. Join at the main meeting or at a chapter meeting or by sending \$20, payable to NOVATARI, to Edmund Bedsworth, 6617 Rosecroft, Falls Church, VA 22043.

**Novatari Main meeting:** second Sunday of the month at the Washington Gas Light Building, 6801 Industrial Rd, Springfield, VA. Take 495 to east on Braddock Rd. (620) to south on Backlick Rd (617). Left on Industrial Rd. Washington Gas Light is the second building on the right. 5:30 Telecom SIG; 6:15 announcements, open forum, door prizes; 6:45 VEST and 8BIT SIG meetings.

**Chapter Meetings:** Mt. Vernon/Hybla Valley, 1st Thursday, 7:30 Contact Ron Peters at 780-0963. Sterling, Sterling Library, 7:30-9:30, 1st Wed. Contact Richard Gunter at 471-7765.

## S.M.A.U.G.

So. Maryland Atari Users' Group

President.....Herb Scott.....  
Secretary.....Fred Brown.....301-645-4009  
Treasurer.....Samuel Schrinar.....301-843-7916

**MEETINGS:** 2nd Thursday, 7:30 pm, John Hanson Middle School in Waldorf, MD. Traveling thru Waldorf either east or west on Rt 5, exit on Vivian Adams located 200 ft west of Waldorf Carpets & Draperies and directly across from the Village Square sign.

**NEW MEMBERS:** Membership dues are \$20 and include a subscription to CURRENT NOTES. Join at the meeting or send check, payable to SMAUG, to Sam Schrinar, 2032 Alehouse Court, Waldorf, MD 20601.

## F.A.C.E.

Frederick Atari Computer Enthusiasts

President.....Chris Rietman.....301-791-9170  
Vice President.....Mike Kerwin.....301-845-4477  
Treasurer.....Buddy Smallwood..717-485-4714

**MEETINGS:** 4th Tuesday, 7 - 9:30 pm, Walkersville HS, MD Route 194, 1 mile north of MD Route 26 (Liberty Road). July and August meetings will be held at St Paul's Lutheran Church, 14 W. Pennsylvania Ave, Walkersville, MD.

**NEW MEMBERS:** Dues are \$25/year/family and include a subscription to CURRENT NOTES. Join at meeting or send check, payable to FACE, to Buddy Smallwood, PO Box 2026, Frederick, MD 21701.

## ARMUDIC BBS

703-573-9207

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**Access to the BBS requires a fee in addition to the dues. This fee is \$5/year for NOVATARI members and \$7.50 for members of other user groups. BBS access fees are to be made payable to "NOVATARI" and sent to: Ed Seward, PO Box 2699, Merrifield, VA 22116.**

## W.A.C.U.G.

Woodbridge Atari Computer Users' Group

President.....Lou Praino.....703-221-8193  
VP.....Ron Dunn.....703-494-4260  
8Bit VP.....Darrell Stiles.....703-494-9819  
ST VP.....Bill Parker.....703-680-3941  
Treasurer.....David Waalkes.....703-490-1225  
Secretary.....Jim Sawici.....703-670-3527  
Librarian.....Frank Bassett.....703-670-8780

**MEETINGS:** 7-9PM, Community Room, Potomac Branch, Prince William County Library, Opitz Blvd., Woodbridge, VA. Entering Woodbridge from either North or South on Route 1, proceed to the intersection of Route 1 and Opitz Blvd. (opposite Woodbridge Lincoln-Mercury). Turn West on Opitz and take first left turn into the library's parking lot. The Community Room is located to your left immediately upon entering the main building. Meeting Dates: Feb 14, March 28, Apr 18, May 16, June 20.

**NEW MEMBERS:** Initial membership fee is \$10 plus \$1 monthly dues.

Renewals are \$20 per year, payable as of 1 January. Membership includes a subscription to CURRENT NOTES. Join at meeting or send check, payable to WACUG, to David Waalkes, 1302 Oregon Ave, Woodbridge, VA 22191.

## M.A.C.C.

Maryland Atari Computer Club

President.....Jim Hill.....301-461-7556  
Vice President.....Dan Honick.....301-356-6453  
Treasurer.....John Cromwell.....301-747-0949

**MEETINGS:** last Tuesday, 6:30 pm, Pikesville Library, 1 mi. east on Reisterstown Rd from Exit 20 off the Baltimore Beltway.

**NEW MEMBERS:** Club Dues are \$25/year and include a subscription to CURRENT NOTES. Join at meeting or send check, payable to MACC, to James Hill, 8591 Wheatfield Way, Ellicott City, MD, 21043.

## G.R.A.S.P.

Greater Richmond Atari Support Program

Mickey Angell.....President.....804-744-3307  
Terry Barker.....V.P.....804-379-8175  
Tom Marvin.....Secy.....804-233-6155

**Meetings:** 2nd and 4th Thursday at La Prade Library, 2730 Hicks Rd.

**Dues:** \$20 per year (no CURRENT NOTES).

## A.U.R.A. Atari Users Regional Association

President.....Steven Rudolph.....301-464-0835  
 8-bit VP.....Bob Langsdale .....301-390-6554  
 16-bit VP.....James Bonbright,Jr 301-933-4891  
 Treasurer.....Bob Brock.....301-268-2554  
 Membership.....Dave van Allen .....301-593-4654

**Meetings** - Third Thursday of each month in the Multipurpose Room at GRACE EPISCOPAL SCHOOL. The school is on the east side of Connecticut Avenue, 1/4 mi. north of the Connecticut Avenue (North) Exit from I-495. Library sales begin at 7:00, the meeting begins at 7:30. July's theme will be word processing. We will have separate XL and ST demonstrations. There will be 8-bit and 16-bit door prizes.

**Correspondence.** All correspondence, including membership renewals, changes of address, etc. should be sent to: AURA, P. O. Box 7761, Silver Spring, MD 20910. AURA cannot guarantee CURRENT NOTES subscription fulfillment unless the member provides written confirmation of address changes, renewals, etc. to the address given above.

**New Members.** Dues are \$25/year and include subscription to CURRENT NOTES. Send name, address, phone number, and check to above address.

## WAACE GOINGS ON NOVATARI NOTES

*Bonnie Little, NOVAtari President*

The following individuals have agreed to serve as

### **Committee Chairs for 1989**

ST program chair ...Frank Chan .....(703) 960-0474  
 8-bit program chair Al Friedman .....(703) 425-0575  
 Public Domain Disk Libraries  
 ST sales .....Glen Bernstein .....(703) 455-6053  
 8 bit developer .....Roy Brooks .....(703) 750-0146  
 8 bit sales by mail..Jeff King.....(703) 281-2573  
 8 bit sales .....Geoff DiMego .....(703) 425-5030  
 Telecom SIG .....Ed Seward .....(703) 573-3044  
 Programmer SIG ....Ken Whitesell.....(301) 636-4756  
 KIDSIG .....Kimberly Scott .....(703) 590-1906

### **Neighborhood SIGs**

Mt.Vernon/Hybla Valley Ron Peters .....(703) 780-0693  
 Sterling.....Richard Gunter .....(703) 471-7765  
 International Liason Charles Crook.....(703) 979-4015

**Save this issue** for these names and numbers and the following meeting times:

**Regular meetings for '89** will be Jan.8, Feb.12, Mar.12, Apr.9, May 21, June 11, July 9, Aug.13, Sep.10, Oct.FEST, Nov.12, Dec.10.

**Board meetings** will be Feb.2, Mar.2, Mar.29, May 10, May 31, June 28, Aug.30, Sep.27, Nov.1, Nov.29 at Nottoway Park.

**The February meeting** will be by Forte to show a service that takes your graphics and puts them on photographic slides.

Watch for announcements about a disk magazine put out by VAST.

## AURA

*Steven Rudolph, AURA President*

Our February meeting will be on the 16th. Be sure to register for one of our special door prizes.

We have been experiencing an increase in attendance and interest at our meetings since Atarifest 88. Spreadsheet applications was the theme of the November meeting, and games were featured at our December meeting.

There were more children than usual at the December meeting, and some of them actually gave the demonstrations, others were vocal in the participation. Very refreshing.

We also played Adult games to show that (a) not all games are for kids or (b) not all kids are kids.

Our January meeting was a special organizational session. Look for new officer names in the March Current Notes.

## WAACE Executive Board

*Gary Purinton, WAACE President*

At press time the WAACE board is looking forward to its organizational meeting on January 26th. Research into meeting sites and special features for **AtariFest '89** is already under way.

We are in the process of reminding all of the WAACE member clubs that they have to submit a list of their membership and the names of their directors to the WAACE president. The membership lists are used to validate the number of directors that each member Club is allowed to appoint according to the WAACE constitution.

If you think your group's name should be listed as a WAACE member Club get after your officers to submit their data.

## ARMUDIC Bits 'n Bytes

*John Barnes, Club Pages Editor*

I looked in on the results of ARMUDIC's hardware survey and found that there were 45 respondents divided as follows: 520/520 fm-(11); 520/520 fm w. 1 Meg - 12; 1040 - 15; 4 Meg 1040 -1; Mega 2 - 3; Mega 4 -3. Hard Disk - 22; >20 Meg -14.

This is probably a 6 to 10 percent return, which is about what can be expected. The return is probably biased toward "power users". It is not surprising that 3/4 of these people like more memory. They also seem to be prepared to pay for their hardware, because PC/XT clones with 30 meg of hard drive are competitive in price with similar Atari configurations. The survey did not look for color vs monochrome on monitors.

Now, how about a software survey from one of you out there?

Let me also remind you that ARMUDIC is a great way for Club officers to pass information and keep in touch with one another. Officers should contact Ed Seward if they need an account or Executive Washroom privileges. The multiline capability means instant access almost all the time. The board seems to be a little difficult to rouse every now and then, but this appears to be an intermittent problem.

## What Makes Club News

*John Barnes, Club Pages Editor*

The second part of CURRENT NOTES' Club Pages is designed to let the various WAACE user groups come out of the closet and let the world know that that one of the Atari community's most precious resources, its people, are alive and well.

These are the folks who bring you AtariFest, but they are also working to educate, stimulate, and inform hundreds of local Atarians every month of the year. In looking over the bare facts that NOVAtari and AURA regularly submit as monthly reports I see more questions than answers. Were the products that were demonstrated useful? Were they fun? What is a SIG? How many people come to SIG sessions? What kinds of things do they do? How is the traffic holding up on ARMUDIC? How many clubs participate?

The user groups cannot expect people to drag themselves out of the house if nothing is going to happen when they get to the meetings. The membership statistics for the WAACE user groups show that our membership is far below past levels. If the people won't come to us we have to go to them, and this means that the groups must reach out and market themselves.

Our Club Pages are seen by hundreds of people who are potential user group members each month. Use this space to let these people know why they should participate in the fun and learning that come with Atari ownership.

## Current Notes' Registered Atari Clubs

Members of registered clubs may subscribe to Current Notes at a discount rate (\$20/yr or \$38/2 yrs). To add your club to the list, send an initial subscription list of 10% of the members or 6 members whichever is less, to CN Registered Clubs, 122 N. Johnson Rd., Sterling, VA 22170.

### ALABAMA

Huntsville AUG, 3911 W. Crestview,  
Huntsville 35816 205-534-1815.

### ARKANSAS

Little Rock Atari Addicts, 28 John  
Hancock Cir, Jacksonville 72076  
501-985-2131.

### CALIFORNIA

Atari Bay Area Computer Users  
Society, PO Box 22212, San Fran-  
cisco 94122 415-753-8483.  
Long Beach ACE, PO Box 92812,  
Long Beach 90809-2812 213-  
423-2758.  
San Diego ACE, PO Box 203076, San  
Diego 92120 619-581-2477.  
Santa Maria/Lompac ACE, 608 N.  
Pierce, Santa Maria 93454 805-  
925-9390.

### CONNECTICUT

AUG of Greater Hartford, 503-B East  
Center St, Manchester 06040.  
ST Atari Road Runners, 1160 South  
Curtis St, Wallingford 06492.

### FLORIDA

Atari Boosters League East, P.O. Box  
1172, Winter Park 32790.

### ILLINOIS

Central Illinois Atari Users Group,  
1920 East Croxton Ave, Blooming-  
ton 61701-5702 309-828-4661.  
Lake County ACE, PO Box 8788,  
Waukegan 60079 312-623-9567.  
ST Information Group, P.O. Box  
1242, Peoria, 61654.

### INDIANA

Atari Lovers of Illiana Equaled by  
None, 706 Center St., Crown Point,  
46307 219-663-5117.  
LCC/ST, Karl Werner, Eli Lilly Corp  
Cntr, Indianapolis 46285 317-  
276-3020.

### IOWA

Midwest Atari Group-Iowa Chapter,  
PO Box 1982, Ames IA 50010  
515-232-1252.

### KANSAS

Ft. Leavenworth Atari Group, PO Box  
3233, Ft Leavenworth 66027 913-

651-5631.

Wichita ACE, 1722 N. Murray, Wichita  
67212 316-722-1078.

### KENTUCKY

Atari Exchange of Louisville, PO Box  
34183, Louisville 40232.

### MARYLAND

Meade Atari ST, 604 Milldam Ct #42,  
Millersville 21108 301-987-4266  
Nameless AUG, 3475 Manassas Ct,  
Davidsonville 21035 301-798-  
0566.

### MASSACHUSETTS

Acton-Boxborough Atari Computer  
Users Society, PO Box 1523,  
Westford 01886 617-937-8046.

### MICHIGAN

Michigan Atari General Information  
Conference, 28111 Imperial Dr,  
Box M, Warren 48093-4281 313-  
978-8432.

### MINNESOTA

SPACE/MAST, 3264 Welcome Ave.,  
N., Crystal. 537-5442.

### MISSOURI

ACE St Louis, PO Box 6783, St. Louis,  
MO 63144.  
Warrensburg/Whiteman Atari Com-  
puter Owners, PO Box 199, War-  
rensburg 64093 816-747-2543.

### NEW JERSEY

Jersey Atari Computer Group, 8  
Crescent Rd, Pine Brook 07058.

### NEW YORK

Atari Computer Owners of Rochester  
NY, PO Box 23676, Rochester  
14692 716-354-5513.  
Rockland Atari Computer Users  
Group, 29 Riverglen Dr., Thiells, NY  
10984 914-429-5283.

### NORTH CAROLINA

Blue Ridge Atari Computer Enthu-  
siasts, Bill Traughber, 106 Alpine  
Way, Asheville, NC 28805.  
Charlotte AUG, PO Box 240313,  
Charlotte 28224 704-366-4320.  
Piedmont Triad AUG, P.O. Box 1073,  
Greensboro, 27402.

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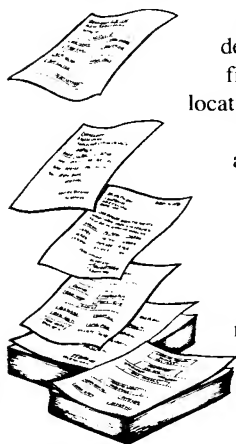
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### System Requirements:

- ✓ Atari 520, 1040, or MEGA ST with one floppy drive and 480K free RAM.



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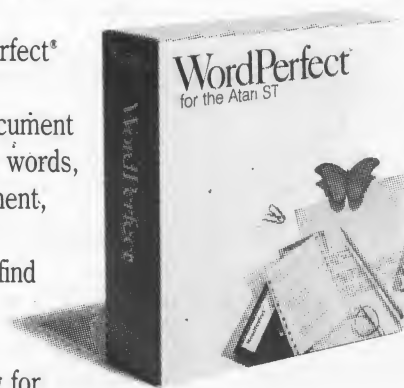
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